The Vascular Plants of British Columbia

Part 3 - Dicotyledons (Primulaceae through Zygophyllaceae) and Pteridophytes

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THE VASCULAR PLANTS OF BRITISH COLUMBIA

edited by

George W. Douglas, Gerald B. Straley and Del Meidinger

Part 3 - Dicotyledon (Primulaceae through Zygophyllaceae) and Pteridophytes

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INTRODUCTION

This manual describes all of the flowering plants and vascular cryptogams, both native and naturalized, occurring within the borders of British Columbia. Keys are included for all genera, species, subspecies and varieties. The study is based on examination of specimens in all major Canadian herbaria and some US herbaria (e.g., UC, CAS, WTU), as well as a complete review of the pertinent literature.

Species not represented by a herbarium collection have been placed in an excluded list (see Appendix). Many of these were incorrectly assumed, by American authors, to range into Canada. These species were often taken up by Taylor and MacBryde (1977). We have also excluded species that are known from only a few collections taken more than 40 years ago.

FORMAT

The manual will be published in four parts — Part 1 includes Gymnosperms and Dicotyledons [Aceraceae through Cucurbitaceae]; Part 2 contains Dicotyledons [Diapensiaceae through Portulacaceae]; Part 3 includes Dicotyledons [Primulaceae through Zygophyllaceae] and Pteridophytes; and Part 4 will include the Monocotyledons. We plan to publish all four parts as a single volume.

The floristic treatment is in alphabetical order by families, genera and species since most of our users may not be familiar with the more traditional "Englerian system". These users (e.g., foresters, wildlife specialists, park managers, amateur naturalists, students, etc.) often require specific information about a species. Thus we have attempted to included the most frequently required information. This includes the following:

Synonyms:

Synonyms are given only when there are references in major floristic treatments to a given species by another name or names.

Common Names:

A common name for each species is included. These are based mainly on names appearing most commonly in the Western North American literature.

Habitat and Moisture Regime:

A brief description of a species habitat preference, including moisture regime, is given. The latter uses a simple (wet - moist - mesic - dry) scale.

Vegetation Zones:

The elevational limits of a species are presented using vegetation zones. The zonal system used here, unlike some of the more localized zonation systems (Krajina 1965; Rowe 1959, 1972; Franklin and Dyrness 1973), has wide application in the northern hemisphere and differs only slightly from that proposed by Dansereau (1975) and Meusel *et al.* (1965) and recommended by Löve (1970) in a review of the subject. The montane zone includes all continuous forests in British Columbia except for the coastal lowlands and some islands which are included in the lowland zone. The upper forests in southern British Columbia, included by some local ecologists (e.g., Krajina 1965) in the subalpine zone, is considered the upper montane zone in this work. The subalpine zone is defined as that area above the montane zone and below the upper limit of conifers as an upright tree form (Douglas 1972). In the southern part of the province, subalpine vegetation consists of a meadow/tree-clump complex (Douglas 1971, 1972), while in the northern part of the province the subalpine zone is dominated by tall shrubs (mainly three- to four-metre *Salix*) and scattered trees (Douglas 1974, Krajina 1975). Above the subalpine zone is the alpine zone where trees occur only in krummholz (or dwarfed) form and the vegetation is extremely short (less than one metre) and commonly referred to as alpine tundra (Krajina 1969, Douglas 1972, Douglas and Bliss 1977). The steppe vegetation zone (Daubenmire 1970) occurs in the interior of the province and

includes what is often referred to as sagebrush or grassland vegetation. The former occurs at lower elevations in the Thompson, Okanagan, Kootenay, Columbia, and Flathead River valleys in southern British Columbia while the latter includes parts of the Fraser and Thompson plateaus and upper Peace River drainage.

Abundance:

The abundance of a species is given by a general scale: rare - infrequent - frequent - common. The rare, and some of the infrequent plants, are documented in Straley *et al.* (1985). Most of the common plants are also well known from numerous other sources. In a number of cases, however, limited collecting or research enabled us to make only general assumptions about the abundance of some of the species.

Range:

The general distribution of a species, both within and outside the province, is presented. Maps compiled at the Royal British Columbia Museum were extremely helpful. Abbreviations are as follows:

Alberta	AB	Maine	ME
British Columbia	BC	Maryland	MD
Manitoba	MB	Massachusetts	MA
New Brunswick	NB	Michigan	MI
Newfoundland	NF	Minnesota	MN
Northwest Territories	NT	Mississippi	MS
Nova Scotia	NS	Missouri	MO
Ontario	ON	Montana	MT
Prince Edward Island	PE	Nebraska	NE
Quebec	PQ	Nevada	NV
Saskatchewan	SK	New Hampshire	NH
Yukon	YT	New Jersey	NJ
		New Mexico	NM
Alabama	AL	New York	NY
Alaska	AK	North Carolina	NC
Arizona	AZ	North Dakota	ND
Arkansas	AR	Ohio	OH
California	CA	Oklahoma	OK
Colorado	CO	Oregon	OR
Connecticut	CT	Pennsylvania	PA
Delaware	DE	Rhode Island	RI
District of Columbia	DC	South Carolina	SC
Florida	FL	South Dakota	SD
Georgia	GA	Tennessee	TN
Hawaii	HI	Texas	TX
Idaho	ID	Utah	UT
Illinois	IL	Vermont	VT
Indiana	IN	Virginia	VA
Iowa	IA	Washington	WA
Kansas	KS	West Virginia	WV
Kentucky	KY	Wisconsin	WI
Louisiana	LA	Wyoming	WY
		Mexico	MX

Notes:

Specific items of importance or problems, especially those related to taxonomy and nomenclature, are noted. If infraspecific taxa require recognition these are keyed here.

A floristic bibliography, arranged by families, is also appended for users wishing to study a species further. A glossary and key to families will appear in Part 4.

The absence of descriptions and illustrations, due to severe budget limitations, should not deter from the overall treatment. Technical descriptions and illustrations of most of British Columbia's plant species are available in a number of regional floras (Abrams 1923-1951; Ferris 1960; Hitchcock *et al.* 1955-1969) or in treatments of some British Columbian plant families (Brayshaw 1976, 1985, 1989; Douglas 1982, 1990, 1991; Szczawinski 1959, 1962; Taylor 1963, 1966, 1970, 1973, 1974a, 1974b, 1983). Additional descriptions for the remaining plants may be found in Argus (1973), Fernald (1950), Packer (1983), Porsild and Cody (1980), Tutin *et al.* (1964-1980) or Welsh (1974).

DATA BASE

The present manual is based on a wealth of regional publications dating back over a hundred years. In addition, most of the species (especially the rare and infrequent ones) have been examined in various Canadian herbaria.

Historically, the floristic documentation of British Columbia's flowering plants and vascular cryptogams began with the enumeration of the extensive collections of J. Macoun (Macoun 1883-1890). This was soon followed by the botanical contributions of his son, J.M. Macoun (1889, 1894-1906). In 1915, the first provincial flora appeared (Henry 1915), treating the southern part of the province. A supplement to this work was later provided by Eastham (1947). The southern part of the province was also included in a treatment of Pacific Northwest vascular plants by Hitchcock *et al.* (1955-1969) - later edited and revised by Hitchcock and Cronquist (1973). During this same period several other major works also appeared. Boivin (1966-1967), after numerous visits to Canadian and American herbaria, produced a checklist of Canadian vascular plants. In his Flora of Alaska and Neighboring Territories, Hultén (1968) provided brief descriptions with range maps that, in many cases, included British Columbian species. Meanwhile, in a treatment of Queen Charlotte Island vascular plants, Calder and Taylor (1968) contributed one of the few floras dealing solely with British Columbia. British Columbia was again included in a regional flora of northwestern North America when Welsh (1974) treated the plants of northern British Columbia. A literature review by Taylor and MacBryde (1977), mainly of North American studies, resulted in a resource inventory of vascular plants. Unfortunately, this extensive review treated several hundred erroneous citations as valid records for the province. Recently, a modern Canadian flora was produced by Scoggan (1978-1979). Finally, all of the province's rare or infrequent plants were examined and verified in various Canadian herbaria by Straley *et al.* (1985).

In addition to the major works mentioned above, there have been numerous taxonomic, floristic and related research papers dealing with British Columbia's vascular plants. Many of these are cited in the floristic bibliography by Douglas *et al.* (1983) and many are specifically referenced in this manual.

TAXONOMIC CONCEPTS

Our view of species limits is a practical one. Therefore, species had to be readily characterized morphologically in order to produce keys usable by a variety of users. Many of the keys were newly constructed while others were adapted for our British Columbia plants from well-tested manuals.

Wherever possible, geographically separate, or largely separate, infraspecific taxa are treated at the subspecies level, while those with geographically sympatric ranges are treated at the varietal level. Since we have not made any nomenclatural changes associated with the production of the manual, this choice between subspecies and variety was not always possible. We have not used more than one infraspecific rank in this work for a single species. Taxa are not recognized at the forma level.

PRIMULACEAE[1]

1. Flowers inconspicuous, sessile to subsessile in leaf axils; corollas membranous and much shorter than the calyces, or absent.
   2. Corollas absent; sepals petaloid; succulent perennials with small, opposite, sessile leaves; capsules valvate ..... *Glaux*
   2. Corollas present, membranous, shorter than the sepals; sepals not petaloid; annuals with mostly alternate leaves; capsules circumscissile ..... *Centunculus*
1. Flowers often showy, stalked; corollas longer than calyces.
   3. Leaves in basal rosettes; flower stems leafless.
      4. Corolla lobes several times as long as tube, sharply reflexed; stamens protruding full length ..... *Dodecatheon*
      4. Corolla lobes less than twice as long as tube, not sharply reflexed; stamens not protruding.
         5. Plants perennials with cushions of small, narrow basal leaves; flowers pink to violet; calyces more or less keeled on and below lobes and glabrous or finely stellate but not pilose ..... *Douglasia*
         5. Plants annuals or perennials, if perennial and with cushions of basal leaves then flowers white and calyces not as above.
            6. Flowers white, generally less than 5 mm, sometimes up to 7 mm, but then plants grey-pilose; corollas constricted at throat ..... *Androsace*
            6. Flowers sometimes white but usually pink to violet or purple, well over 5 mm long; plants never grey-pilose; corollas not constricted at throat ..... *Primula*
   3. Leaves not confined to basal rosettes; flower stems leaf bearing.
      7. Leaves reduced and often scalelike on lower part of stem, larger leaves crowded or whorled near stem tip; flowers mostly 6-7 (5-9)-merous ..... *Trientalis*
      7. Leaves more or less the same along length of the stem; flowers mostly 5-merous.
         8. Leaves alternate; flowers in a terminal raceme, white, 4-5 mm wide; capsules valvate ..... *Samolus*
         8. Leaves opposite or whorled; flowers yellow or salmon pink, 10-20 mm wide; inflorescences and capsules various.
            9. Flowers salmon pink, solitary in axils, 10-12 mm wide; plants annuals, decumbent; capsules circumscissile ..... *Anagallis*
            9. Flowers yellow, solitary in axils or in axillary or terminal racemes, generally 10-20 mm wide; plants perennial, often erect; capsules valvate ..... *Lysimachia*

ANAGALLIS

***Anagallis arvensis* L.**
Scarlet pimpernel, or poor man's weatherglass
Habitat/Range: Fields and waste areas; infrequent garden escape in extreme SW BC; introduced from Europe.

[1] Contributed by T.A. Suttill.

ANDROSACE[2]

1. Rosette leaves grey-pilose; pedicels shorter than flowers.
   2. Plants perennials; corollas much exceeding calyces; scapes 1 per rosette, villous with long simple hairs ..... *A. chamaejasme*
   2. Plants annuals; corollas about as long as calyces; scapes many per rosette, glabrous or with stellate hairs ..... *A. alaskana*
1. Rosette leaves glabrous to pubescent but not grey-pilose; pedicels longer than flowers.
   3. Leaves narrowing abruptly, petioles about as long as leaf blade; calyces hemispheric ..... *A. filiformis*
   3. Leaves sessile or very short petiolate; calyces turbinate.
      4. Involucral bracts oblong to oblong-obovate; corollas scarcely exceeding calyx tube; calyx lobes ovate-lanceolate, about as long as the tube ..... *A. occidentalis*
      4. Involucral bracts lanceolate to linear; corollas somewhat longer than calyx tube; calyx lobes more or less deltoid, shorter than the tube ..... *A. septentrionalis*

***Androsace alaskana* Cov. & Standl.**

Alaskan fairy-candelabra

Habitat/Range: Rocky or sandy sites in the subalpine and alpine zones; rare in N BC; N to SE AK and SW YT.

Notes: This species is closely related to *A. septentrionalis*.

***Androsace chamaejasme* Wulfen in Jacq. non Host** (*A. lehmanniana* Spreng.)

Sweet-flowered fairy-candelabra

Habitat/Range: Rocky slopes or dry meadows in the subalpine and alpine zones; rare in N and SE BC; circumpolar, N to AK and YT and S to MT; Eurasia.

***Androsace filiformis* Retz.**

Slender-flowered fairy-candelabra

Habitat/Range: Wet meadows along streams in the subalpine and alpine zones; infrequent in N BC; N to AK and YT and S to MT, CO and OR.

***Androsace occidentalis* Pursh**

Western fairy-candelabra

Habitat/Range: Dry, sandy sites in the steppe vegetation and montane zones; infrequent in SC BC; E to ON and S to IN, TX, NM and CA.

***Androsace septentrionalis* L.** (*A. septentrionalis* var. *puberulenta* [Rydb.] Knuth in Engl., *A. septentrionalis* var. *subulifera* A. Gray, *A.septentrionalis* var. *subumbellata A. Nels., A. septentrionalis* var. *diffusa* [Small] Knuth)

Northern fairy-candelabra

Habitat/Range: Dry, open sites from the montane to alpine zones; common in BC interior; circumpolar, S to AZ, NM and CA; Eurasia.

Notes: A polymorphic species, both as to pubescence and stature, but not easily separated into natural infraspecific taxa. Closely related to *A. alaskana*.

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[2] Key adapated from Hitchcock and Cronquist (1973).

CENTUNCULUS

Centunculus minimus **L.** (*Anagallis minima* [L.] Krause in Sturm)
Chaffweed
Habitat/Range: Moist places and pond margins in the lowland zone; rare on S Vancouver Island; S to MN, IL, CA, TX, FL and MX; South America, Europe.

DODECATHEON[3]

1. Petals white, drying and persistent with stamens, capsules protruding among them; leaf blades ovate to oblong-lanceolate, sinuate to sharply dentate, rounded to cordate at base, narrowed to slender petioles about the same length to twice as long as the blade ..... *D. dentatum*

1. Petals normally pink to rose to purple, deciduous with stamens as capsules mature; leaf blades mostly entire or very shallowly toothed, tapering more or less gradually to winged petioles.

   2. Stigmas strongly capitate, usually at least twice as broad as the style at mid-length; flowers 4- or 5-merous; filaments not connate, rarely more than 1 mm long ..... *D. jeffreyi*

   2. Stigmas not strongly capitate, less than twice as broad as style at mid-length; flowers typically 5-merous; filaments usually connate and forming a tube greater than 1 mm long.

      3. Leaves abruptly narrowed to distinct petioles, blades less than 3 times as long as broad; filaments deep purple-red.

         4. Filaments 2-4 mm long, connate into a tube; connective tissue of anthers usually crosswise wrinkled; leaf blades ovate to deltoid, entire, glabrous to glandular-pubescent; plants of SW BC ..... *D. hendersonii*

         4. Filaments 1 mm long or less, free or shallowly connate, connective tissue of anthers usually smooth; leaf blades ovate to oval, entire to dentate, glabrous; plants of NC BC ..... *D. frigidum*

      3. Leaves narrowed gradually to petioles, blades generally more than 3 times as long as broad; petioles sometimes indistinct; filaments yellow, sometimes flecked with red or purple.

         5. Filaments 1 mm long or less, free or connate; connective tissue of anthers strongly crosswise wrinkled; capsules operculate ..... *D. conjugens*

         5. Filaments generally longer than 1.5 mm; connective tissue of anthers either smooth or wrinkled lengthwise; capsules valvate to tip.

            6. Plants strongly glandular-pubescent, 4-15 hairs per mm along edge of involucral bracts ..... *D. cusickii*

            6. Plants glabrous or very slightly pubescent, 0-3 hairs per mm along edge of involucral bracts ..... *D. pulchellum*

Dodecatheon conjugens **Greene** (*D. conjugens* var. *beamishii* Boivin = var. *conjugens*)
Slimpod or desert shootingstar
Habitat/Range: Mesic to dry sites in the steppe vegetation to alpine zones; common in SE BC; E to SK and S to WY and CA.
Notes: Two sympatric varieties occur in BC.

1. Leaf blades glabrous to subglabrous ..... var. *conjugens*
1. Leaf blades densely pubescent with long, flattened glandular hairs ..... var. *viscidum* (Piper) Mason ex St. John

[3] Ibid., page 5.

***Dodecatheon cusickii* Greene** (*D. pauciflorum* [Durand] Greene var. *cusickii* [Greene] Mason ex St. John, *D. pulchellum* ssp. *cusickii* [Greene] Calder & Taylor)
Cusick's or sticky shootingstar
Habitat/Range: Mesic to dry sites in the steppe vegetation and montane zones; common in SC BC, rare northward; S to ID, MT and OR.

***Dodecatheon dentatum* Hook.**
White or dentate shootingstar
Habitat/Range: Wet to moist streambanks and shaded slopes in the montane zone; locally infrequent in SC BC; S to OR and ID.

***Dodecatheon frigidum* Cham. & Schlecht.**
Northern shootingstar
Habitat/Range: Moist sites in the montane to alpine zones; frequent in NC BC; N to AK, YT and NT.

Dodecatheon hendersonii* A. Gray ssp. *hendersonii
Broad-leaved or Henderson's shootingstar
Habitat/Range: Mesic to dry open sites in the lowland and montane zones; locally common on S Vancouver Island and the lower Fraser Valley; S to OR and CA.

***Dodecatheon jeffreyi* van Houtte**
Jeffrey's or tall mountain shootingstar
Habitat/Range: Wet sites, meadows and streambanks in the lowland and montane zones; frequent in BC, especially on the coast and in SE BC; N to AK and S to ID, MT and CA.

***Dodecatheon pulchellum* (Raf.) Merrill** (*D. pauciflorum* [Durand] Greene, *D. pauciflorum* var. *alaskanum* [Hult.] C.L. Hitchc., *D. pulchellum* ssp. *macrocarpum* [A. Gray] Taylor & MacBryde, *D. pulchellum* ssp. *pauciflorum* [Durand] Hult., and *D. pulchellum* ssp. *superbum* [Pennell & Stair] Hult. = var. *pulchellum*; *D. radicatum* Greene, *D. radicatum* ssp. *macrocarpum* [A. Gray] Beamish, *D.pauciflorum* var. *watsonii* [Tidestr.] C.L. Hitchc., and *D. radicatum* ssp. *watsonii* Thomps. = var. *watsonii)*
Few-flowered or pretty shootingstar
Habitat/Range: Saline to non-saline, wet to ephemerally wet sites from the lowland to alpine zones; common in coastal and S BC, less frequent elsewhere; N to AK and S to PA and MX.
Notes: Two intergrading and sympatric varieties occur in BC.

1. Plants dwarfed, mostly 2-5 cm; inflorescences mostly 1-2 flowered; plants alpine to subalpine ..... var. *watsonii* (Tidestr.) C.L. Hitchc.
1. Plants rarely less than 6 cm tall; inflorescences mostly several flowered; plants widespread ..... var. *pulchellum*

DOUGLASIA[4]

1. Flowers single or sometimes 2, not involucrate.
   2. Leaves awl-shaped, somewhat interruptedly imbricate-clustered, 3-4 mm long, sparsely and minutely ciliate; rare in SE BC ..... *D. montana*
   2. Leaves oblanceolate, closely imbricate, 4-10 mm long, pubescent on the lower surface and margin with stellate hairs; rare in NW BC ..... *D. gormanii*
1. Flowers 2-10, pedicellate in involucrate umbels.
   3. Leaves grey-pubescent with tiny stellae; involucral bracts usually several times as long as broad; flowers usually conspicuously pedicellate; plants of SE BC ..... *D. nivalis*

[4] Ibid., page 5.

3. Leaves glabrous or barely ciliolate; involucral bracts usually not more than twice as long as broad; flowers usually subsessile; plants of W BC ..... *D. laevigata*

***Douglasia gormanii* Const.** (*D. arctica* Hook. var. *gormanii* [Const.] Boivin)
Gorman's douglasia
Habitat/Range: Rocky slopes in the subalpine and alpine zones; rare in N BC, known only from Spatsizi Plateau; N to AK and YT.

***Douglasia laevigata* A. Gray** (*D. laevigata* var. *ciliolata* Const.)
Smooth douglasia
Habitat/Range: Moist coastal or river bluffs to rocky ridges in the lowland to alpine zones; rare on Vancouver Island and the Queen Charlotte Islands, also known from Manning Provincial Park; S to OR.

***Douglasia montana* A. Gray**
Rocky Mountain douglasia
Habitat/Range: Dry sites on open ridges and scree slopes in the subalpine and alpine zones; rare in SE BC; E to SW AB and S to ID and N WY.

***Douglasia nivalis* Lindl.**
Snow douglasia
Habitat/Range: Dry sites and talus slopes in the steppe vegetation to alpine zones; rare in SE BC; S to WA.

GLAUX

***Glaux maritima* L.**
Sea-milkwort
Habitat/Range: Tideflats and interior alkaline marshes and meadows in the lowland, steppe vegetation and montane zones; common in coastal, NC and E BC, less frequent elsewhere; circumpolar, widespread in arctic and temperate N America; Eurasia.
Notes: Two subspecies occur in BC.[5]

1. Leaves oval to oblong, length-width ratio of more than 3.25, rounded at tip; habit more erect; plants strictly coastal ..... ssp. *obtusifolia* (Fern.) Boivin
1. Leaves narrower, length-width ratio of 3.0 or less, pointed at tip; habit more prostrate; plants of NC and E BC ..... ssp. *maritima*

LYSIMACHIA[6]

1. Flowers solitary in leaf axils; plants erect, not dark-spotted; leaves at midstem ovate to ovate-lanceolate, mostly finely ciliate; petioles generally strongly ciliate; filaments distinct; staminodia present .... *L. ciliata*

1. Flowers not solitary in leaf axils or if so then plant prostrate and leaves oval, not ciliate; plants generally reddish- or purplish-black spotted; filaments often connate at base; staminodia lacking.

   2. Stems creeping; leaves suborbicular to oblong-ovate, nearly as broad as long; flowers single in axils; corolla lobes oval to elliptic, dotted with red ..... *L. nummularia*

   2. Stems erect; leaves lanceolate to ovate-lanceolate, rarely half as broad as long; flowers not single in leaf axils; corolla lobes mostly narrowly elliptic, sometimes not dotted.

      3. Plants hairy; leaves mostly in whorls of 3-4; corollas without streaks or dots.

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[5] Key adapted from Calder and Taylor (1968).

[6] Key adapted from Hitchcock and Cronquist (1973).

4. Flowers generally 3-5 in small, leafy pedunculate groups in leaf axils; corollas large, 12-16 (18) mm; styles persistent ..... *L. punctata*

4. Flowers in a terminal panicle, leafy below; corollas smaller, 8-11 (13) mm; styles deciduous ..... *L. vulgaris*

3. Plants glabrous; leaves opposite; corollas more or less streaked or dotted with red or purplish-black.

5. Racemes terminal, loose, more or less leafy-bracteate, pedicels 1-2 cm; corollas deep yellow; filaments connate at base, shorter than corolla lobes ..... *L. terrestris*

5. Racemes axillary, closely flowered, pedicels almost lacking; corollas pale yellow; filaments distinct, longer than corolla lobes ..... *L. thyrsiflora*

Lysimachia ciliata **L.** (*Steironema ciliatum* [L.] Raf.)
Fringed loosestrife
Habitat/Range: Wet to moist sites in the montane zone; common in SC BC; E to NS and S to OR, CO, TX and FL.

Lysimachia nummularia **L.**
Creeping loosestrife, or creeping jenny
Habitat/Range: Moist sites in the lowland zone; infrequent on Vancouver Island and the Fraser Valley; S to OR; introduced from Europe.

Lysimachia punctata **L.**
Spotted loosestrife
Habitat/Range: Moist roadsides and ditches; infrequent garden escape in BC west of the Coast-Cascade Mountains; introduced from Europe.

Lysimachia terrestris **(L.) Britt., Stearns & Poggin**
Bog loosestrife
Habitat/Range: Bogs and swamps; infrequent in cranberry bogs on Vancouver Island; introduced from E North America.

Lysimachia thyrsiflora **L.**
Tufted loosestrife
Habitat/Range: Wet marshes in the lowland and montane zones; frequent in BC; N to AK and YT, E to PQ, and S to MO and WV.

Lysimachia vulgaris **L.**
Yellow loosestrife
Habitat/Range: Roadsides and wet sites; rare garden escape on S Vancouver Island; introduced from Europe.

PRIMULA

1. Involucral bracts distinctly auriculate at base; leaf blades elliptic to orbicular, long petiolate ..... *P. sibirica*

1. Involucral bracts flat to saccate but not auriculate at base; leaf blades and petioles various.

2. Leaves with 5-11 large apical teeth; flowers large, more than 15 mm broad; plants efarinose ..... *P. cuneifolia*

2. Leaves entire to crenate to dentate but without conspicuous apical teeth; flowers mostly smaller, 10 mm or less broad; plants efarinose or farinose.

   3. Plants robust, strongly farinose; leaves oblanceolate to spatulate, tapering to broad petioles; bracts flat to slightly gibbous-based; corolla lobes 2-3 mm long, shorter than tubes, lobes deeply cleft .. .. *P. incana*

   3. Plants efarinose to slightly farinose; leaves and bracts various; corolla lobes 2-7 mm long, cleft or not.

      4. Leaves oblong, entire to slightly undulating, narrowing abruptly to long, slender petioles; bracts saccate; flowers small, less than 5 mm broad ..... *P. egaliksensis*

      4. Leaves oblanceolate to spatulate or obovate, mostly distinctly toothed to obscurely undulate-dentate, tapering gradually to broad petioles; bracts various; flowers larger, greater than 5 mm broad.

         5. Bracts flat; corollas large, 10-15 mm broad, with a conspicuous yellow eye; corolla lobes deeply cleft ..... *P. mistassinica*

         5. Bracts saccate; corollas small, 5-8 mm broad, without a conspicuous eye; corolla lobes emarginate ..... *P. stricta*

***Primula cuneifolia* Ledeb. ssp. *saxifragifolia* (Lehm.) W.W. Smith & Forrest**

Wedge-leaf primrose

Habitat/Range: Wet meadows in the subalpine and alpine zones; rare in W BC, known only from NW Vancouver Island and the Haines Road; amphiberingian, N to AK; E Asia.

***Primula egaliksensis* Wormskj.**

Greenland primrose

Habitat/Range: Wet meadows, streams and marshes in the upper montane to alpine zones; infrequent in N and SE BC, also Vancouver Island; N to AK, YT and NT, E to NF and S to CO.

***Primula incana* M.E. Jones** (*P. farinosa* L. var. *incana Fern.*)

Mealy primrose

Habitat/Range: Moist steambanks, meadows and ledges in the montane and subalpine zones; infrequent in E and N BC; N to AK, YT and NT, E to PQ and S to CO and UT.

***Primula mistassinica* Michx.** (*P. maccalliana* Wieg.)

Mistassini primrose

Habitat/Range: Moist meadows and streambanks in the montane zone; rare in NE and SE BC; N to AK, YT and NT, E to NF and S to ME and NH.

***Primula sibirica* Jacq.** (*P. clusiana Tausch*)

Siberian primrose

Habitat/Range: Moist sites in the subalpine and alpine zones; rare in N BC; circumpolar, N to AK and YT; Eurasia.

***Primula stricta* Hornem.**

Upright primrose

Habitat/Range: Moist sites, sometimes saline, in the montane and subalpine zones; rare in NW BC, known only from the Haines Road; circumpolar, N to AK, YT and NT, E to NF; Greenland, Iceland, Europe.

SAMOLUS

***Samolus valerandi* L.** (*S. valerandi* ssp. *parviflorus* [Raf.] Hult.)
Brookweed, or water pimpernel
Habitat/Range: Swamps and streams in lowland zone; rare in the Fraser Valley; circumpolar, E to ON, PE and NS, S to FL, CA and MX; Eurasia.

TRIENTALIS[7]

1. Flowers usually white; pedicels longer than main leaves; leaves of terminal cluster 1.5-5 cm long, reduced leaves scattered along stem below; tubers less than 1 cm long, not conspicuously enlarged, horizontal .. .. *T. arctica*

1. Flowers pinkish to rose; pedicels shorter than main leaves; leaves of terminal whorl 3-10 cm long, all others reduced to tiny bracts; tubers 1-2 cm long, ascending to erect ..... *T. latifolia*

***Trientalis arctica* Fisch. ex Hook.** (*T. europaea* L. ssp. *arctica* [Fisch.] Hult.)
Northern starflower
Habitat/Range: Moist sites, bogs and swamps in the lowland and montane zones; frequent throughout BC; N to AK, YT and NT, E to AB, and S to ID and OR.

***Trientalis latifolia* Hook.** (*T. europaea* L. var. *latifolia* [Hook.] Torr., *T. borealis* Raf. ssp. *latifolia* [Hook.] Hult.)
Broad-leaved or western starflower
Habitat/Range: Moist to mesic sites in the lowland and montane zones; common in S BC, rare northward; N to YT, E to AB and S to ID and N CA.

RANUNCULACEAE[8]

1. Flowers irregular, bilaterally symmetrical.
   2. Upper sepal hooded but not spurred; petals usually 2, concealed inside hood ..... *Aconitum*
   2. Upper sepal spurred but not hooded; petals 2 or 4, not concealed by the sepals.
      3. Annuals; petals 2, united; follicle 1 ..... *Consolida*
      3. Perennials, usually from fleshy roots, tubers or corms; petals 4, distinct; follicles 3 .... *Delphinium*
1. Flowers regular.
   4. Petals prominently spurred, showy; fruits of several follicles; plants perennials ..... *Aquilegia*
   4. Petals either spurred and/or not showy, sometimes lacking; fruits various; plants annuals or perennials.
      5. Plants annuals, scapose; leaves linear; flowers inconspicuous; sepals spurred ..... *Myosurus*
      5. Plants usually perennials, stems leafy; leaves various; flowers generally showy; sepals not spurred.
         6. Pistils 1; fruits a red or white berry ..... *Actaea*
         6. Pistils usually 2 or more; fruits an achene or a follicle.

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[7] Key adapted from Hitchcock and Cronquist (1973).
[8] Ibid.

7. Fruits 1-seeded achenes.
   8. Perianths consisting of both calyx and corolla, the corolla more showy than the calyx ..... *Ranunculus*
   8. Perianths consisting of only the calyx, or if the corolla present, then much less showy than the calyx.
      9. Sepals small and inconspicuous, usually greenish or white, less showy than the stamens; cauline leaves (if any) alternate.
         10. Leaves simple, palmately lobed; flowers perfect ..... *Trautvetteria*
         10. Leaves bi- or triternately compound; flowers often imperfect ..... *Thalictrum*
      9. Sepals usually conspicuous and more showy than the stamens; cauline leaves opposite or whorled.
         11. Cauline leaves opposite; plants viny; styles long plumose; sepals usually 4 ..... *Clematis*
         11. Cauline leaves usually in a whorl of 3; plants never viny; styles short and glabrous to long and plumose; sepals mostly 5 or more ..... *Anemone*
7. Fruits 2- to many-seeded follicles.
   12. Leaves simple to palmately compound, never ternately dissected.
      13. Leaves simple, the margins merely crenate or dentate ..... *Caltha*
      13. Leaves deeply 5-lobed to palmately compound ..... *Trollius*
   12. Leaves 1-3 times ternately divided to compound.
      14. Leaves evergreen, leathery; petals gland-bearing; rhizomes bright yellow .... *Coptis*
      14. Leaves herbaceous; petals not gland-bearing; rhizomes not yellow.
         15. Plants 10-20 dm tall; follicles 1-3; restricted to mainland SW BC ..... *Cimicifuga*
         15. Plants 1-4 dm tall; follicles 4; endemic to coastal islands ..... *Isopyrum*

ACONITUM

1. Leaf-blades divided to the base; hoods (upper sepals) wider than high in side view; plants of N BC ..... *A. delphiniifolium*
1. Leaf-blades not divided to the base; hoods higher than wide in side view; plants of S BC ..... *A. columbianum*

Aconitum columbianum **Nutt. in T.& G. var.** ***columbianum***

Columbian monkshood

Habitat/Range: Moist meadows and forests in the montane and subalpine zones; common in SC and SE BC; S to SD, CO, NM and CA.

Aconitum delphiniifolium **DC. ssp.** ***delphiniifolium***

Mountain monkshood

Habitat/Range: Moist to mesic meadows and forests from the montane to the alpine zones; common in N BC north of 53°N; N to AK, YT and NT and E to AB.

ACTAEA

***Actaea rubra* (Ait.) Willd.** (*A. arguta* Nutt. ex T.& G., *A. rubra* ssp. *arguta* [Nutt. ex T.& G.] Hult.)
Baneberry
Habitat/Range: Moist sites in the lowland and montane zones; common throughout BC; N to AK, YT and NT, E to NF and S to NJ, OH, SD, NM, AZ and CA.

ANEMONE

1. Styles plumose, 1.5-3.5 cm long at maturity.
   2. Sepals white or purplish tinged; achenes about 4 mm long; leaves bipinnately divided; fruiting receptacles elongate ..... *A. occidentalis*
   2. Sepals usually blue to purplish; achenes about 3 mm long; leaves palmately divided or trifoliate; fruiting receptacles globose ..... *A. patens*
1. Styles usually not plumose, less than 1.5 cm long at maturity.
   3. Flowers yellow, solitary ..... *A. richardsonii*
   3. Flowers creamy to white, solitary to several.
      4. Achenes glabrous to short-hirsute or finely pubescent (not woolly).
         5. Achenes broadly winged; styles 2-5 mm long ..... *A. canadensis*
         5. Achenes wingless; styles 0.5-1 mm long.
            6. Achenes glabrous, 6-9 mm long; styles 0.8-1 mm long; plants of N BC ..... *A. narcissiflora*
            6. Achenes shortly hirsute or finely pubescent, 3-4 mm long; styles less than 0.75 mm long; plants of S BC.
               7. Sepals 8-20 mm long; stamens 35-55; plants of SE BC ..... *A. piperi*
               7. Sepals 6-10 mm long; stamens 12-20 (rarely 35); plants of SW BC ..... *A. lyallii*
      4. Achenes densely woolly or villous.
         8. Involucral leaves petiolate.
            9. Peduncles with secondary involucres; leaf-lobes serrate on one side for half their length or more ..... *A. riparia*
            9. Peduncles mostly naked; leaf-lobes merely coarsely toothed at the apex ..... *A. cylindrica*
         8. Involucral leaves sessile.
            10. Leaves trifoliate, mostly 1-3 cm wide, the segments wedge-shaped ..... *A. parviflora*
            10. Leaves either ternately compound or much divided into narrow segments.
               11. Plants generally 1-2 dm tall, 1-flowered; sepals often bluish; styles straight, slender, 1.5-4 mm long ..... *A. drummondii*
               11. Plants generally 2-5 dm tall, 1- several-flowered; sepals often reddish; styles thickened at base, 1-1.5 mm long ..... *A. multifida*

***Anemone canadensis* L.**

Canada anemone

Habitat/Range: Moist meadows and forest openings in the montane zone; rare, scattered throughout BC east of the Coast-Cascade Mountains and S of 56°N; N to NT, E to NS and S to MO, OH, NJ and NM.

***Anemone cylindrica* A. Gray**

Long-headed anemone, or thimbleweed

Habitat/Range: Dry sites in the steppe vegetation and montane zones; infrequent in E BC north to 56°N; N to NT, E to NB and S to NJ, SD, MO and NM.

***Anemone drummondii* S. Wats.** (*A. lithophila Rydb. = var. lithophila*)

Alpine or Drummond's anemone

Habitat/Range: Mesic to dry sites in the subalpine and alpine zones; var. *drummondii* - rare in SW BC; var. *lithophila* - common in SE BC, infrequent elsewhere E of the Coast-Cascade Mountains; var. *lithophila* - N to AK and YT, E to AB and S to MT; var. *drummondii* - S to CA, disjunct in C ID.

Notes: Two varieties occur in BC.

1. Leaf segments mostly 1.5-2.5 mm wide; styles 2-2.5 mm long; plants of E BC ..... var. *lithophila* (Rydb.) C.L. Hitchc.
1. Leaf segments mostly 1-1.5(2) mm wide; styles mostly 2-4 mm long; plants of SW BC ..... var. *drummondii*

***Anemone lyallii* Britt.** (*A. quinquefolia* L. var. *lyallii* [Britt.] B.L. Robins.)

Lyall's anemone

Habitat/Range: Moist meadows and forest openings in the lowland, montane and subalpine zones; common in SW BC, rare northward in W BC to 55°N; S to N CA.

***Anemone multifida* Poir.** (*A. multifida* var. *hirsuta* C.L. Hitchc., var. *richardsiana* Fern. and var. *saxicola* Boivin f. *hirsuta* [C.L. Hitchc.] T.C. Brayshaw)

Cut-leaved or Pacific anemone

Habitat/Range: Mesic to dry sites from the lowland to subalpine zones; common throughout BC; N to AK, YT and NT, E to NF and S to NY, ME, NE, NM, NV and N CA; disjunct in S America.

Notes: Much of the variation in this species is probably due to environmental conditions, thus until adequate studies show otherwise, we are not recognizing the multitude of segregates previously proposed.

***Anemone narcissiflora* L.** (*A. narcissiflora* ssp. *alaskana* Hult. and ssp. *interior* Hult.)

Narcissus anemone

Habitat/Range: Moist to mesic forests and meadows from the lowland to the alpine zones; common in N BC and along the coast from Brooks Peninsula northward; circumboreal, N to AK, YT and NT.

Notes: It is quite likely that the typical phase of this species is restricted to Europe. Many segregates have been recognized (mainly on type of pubescence) in North America and USSR but all are poorly defined and lack adequate study.

***Anemone occidentalis* S. Wats.** (*Pulsatilla occidentalis* [S. Wats.] Freyn)

Western pasqueflower or anemone, or tow-headed baby

Habitat/Range: Mesic meadows and forest openings from the montane to alpine zones; common in S BC; E to AB and S to ID, MT and N CA.

***Anemone parviflora* Michx.**

Northern anemone

Habitat/Range: Moist meadows and forests from the lowland to the alpine zones; common throughout BC; N to AK, YT and NT, E to NF and S to ID, CO and OR.

***Anemone patens* L. ssp. *multifida* (Pritzel) Hult.** (*A. nuttalliana* DC., *Pulsatilla patens* [L.] P. Miller ssp. *multifida* [Pritzel] Zamels)
Prairie crocus or pasqueflower
Habitat/Range: Dry meadows and forest openings from the steppe vegetation to the subalpine zones; common in extreme N and E BC; N to AK, YT and NT, E to W ON and S to MI, MO, TX, UT and N WA.
Notes: The Eurasian material (ssp. *patens*) appears to be scarcely distinguishable from the North American plants.

***Anemone piperi* Britt. ex Rydb.**
Piper's anemone
Habitat/Range: Moist forests in the montane zone; rare in SE BC, known only from the Kaslo area; S to ID, MT and OR.

***Anemone richardsonii* Hook.**
Yellow anemone
Habitat/Range: Moist sites from the montane to alpine zones; common E of the Coast-Cascade Mountains and S to 52°N; amphiberingian, N to AK, YT and NT, E to PQ and Greenland; NE Asia.
Notes: At first glance this yellow-flowered species could be mistaken for *Ranunculus lapponicus*.

***Anemone riparia* Fern.** (*A. virginiana L. var. riparia* [Fern.] Boivin)
Riverbank anemone
Habitat/Range: Moist to mesic sites in the steppe vegetation and montane zones; rare, known only from scattered locations ranging from SW to NE BC (along Fraser and Beatton River drainages); E to NF and S to ME, IL and MN.

AQUILEGIA

1. Sepals blue or bluish-purple; spurs shorter than the petal blades ..... *A. brevistyla*

1. Sepals yellow or pale to deep red; spurs mostly longer than the petal blades.

   2. Sepals yellow; spurs more or less incurved, the petal blades usually over 6 mm long ..... *A. flavescens*

   2. Sepals pale to deep red; spurs usually nearly straight, the petal blades usually less than 6 mm long .. *A. formosa*

***Aquilegia brevistyla* Hook.**
Blue columbine
Habitat/Range: Mesic meadows and open forests in the montane zone; frequent in BC north of 51°N and E of the Coast-Cascade Mountains; N to AK, YT and NT, E to ON and S to SD.

***Aquilegia flavescens* S. Wats.**
Yellow columbine
Habitat/Range: Moist meadows in the subalpine and alpine zones; common in SC and SE BC, rare northward; E to AB and S to CO, UT, ID and OR.
Notes: This species hybridizes frequently with *A. formosa* where the ranges overlap. The hybrids have been called *A. flavescens* var. *miniana* Macbr. & Pays.

***Aquilegia formosa* Fisch. in DC.**
Red or Sitka columbine
Habitat/Range: Mesic, usually open sites in all vegetation zones except the alpine; common throughout BC, except absent in SE BC; N to SW AK and S YT, E to SW AB and S to UT and MX.

CALTHA

1. Sepals yellow ..... *C. palustris*
1. Sepals white.
   2. Flowering stems leafy, usually more than 2 leaves, floating or creeping; sepals 4-5 mm long ..... *C. natans*
   2. Flowering stems leafless or rarely up to 2 leaves, erect; sepals 7-20 mm long ..... *C. leptosepala*

***Caltha leptosepala* DC.** (*C. biflora* DC., *C. biflora* var. *rotundifolia* [Huth] C.L. Hitchc. and *C. leptosepala* ssp. *howellii* [Huth] P.G. Smith = var. *biflora*)
White or mountain marsh-marigold, or elkslip
Habitat/Range: Wet to moist sites from the lowland to alpine zones; var. *biflora* - common in W BC, west of the Coast-Cascade Mountains; var. *leptosepala* - common throughout BC except Queen Charlotte Islands and adjacent coast; var. *leptosepala* - N to SW AK and S YK, E to AB and var. *biflora* - S to CO, UT and CA.
Notes: Two varieties occur in BC.
1. Leaves longer than broad, the margins more dentate than crenate; flowers usually 1 per stem ..... var. *leptosepala*
1. Leaves nearly or quite as broad as long, the margins subentire to broadly crenate; flowers mostly 2 per stem ..... var. *biflora* (DC.) Lawson

***Caltha natans* Pallas**
Floating marsh-marigold
Habitat/Range: Ponds and lake shores in the montane zone; locally frequent in NE BC; amphiberingian, N to AK, YT and NT, E to MB and S to N MN; N Asia.

***Caltha palustris* L. ssp. *asarifolia* (DC.) Hult.** (*C. asarifolia* DC.)
Yellow marsh-marigold, or cowslip
Habitat/Range: Wet sites, bogs and shallow water in the lowland zone; rare along the coast; N to AK and S to OR.

CIMICIFUGA

***Cimicifuga elata* Nutt.**
Tall bugbane
Habitat/Range: Moist forests in the lower montane zone; rare in extreme SW BC, known only from the Hope-Chilliwack River area (1957 record from Mt. Liumchen); S to NW OR.

CLEMATIS

1. Sepals blue to reddish-purple ..... *C. occidentalis*
1. Sepals white, yellow, greenish-white or greenish-yellow.
   2. Sepals white; flowers imperfect, the plants dioecious; plants native ..... *C. ligusticifolia*
   2. Sepals yellow, greenish-white or greenish-yellow; flowers perfect; plants introduced.
      3. Leaflet margins usually sharply and coarsely toothed ..... *C. tangutica*
      3. Leaflet margins entire or nearly so ..... *C. vitalba*

***Clematis ligusticifolia* Nutt. in T.& G.**
White clematis or virgin's bower, or pipestems
Habitat/Range: Along streams in the steppe vegetation and lower montane zones; frequent in SC and SE BC; S to SD, NM and CA.

***Clematis occidentalis* (Hornem.) DC. ssp. *grosseserrata* (Rydb.) Taylor & MacBryde** (*C. columbiana* [Nutt.] T.& G., C. *occidentalis* var. *grosseserrata* [Rydb.] Pringle, *C. verticillaris* DC. var. *columbiana* [Nutt.] A. Gray)
Columbia or blue clematis or virgin's bower
Habitat/Range: Mesic to dry sites in the steppe vegetation, montane and subalpine zones; common in S BC east of the Coast-Cascade Mountains, less frequent northward; E to SK and S to WA, ID and MT.

***Clematis tangutica* (Maxim.) Korsh.** (*C. orientalis* L. var. *tangutica* Maxim.)
Golden clematis
Habitat/Range: Roadsides and disturbed sites; rare garden escape throughout BC; introduced from NW China.

***Clematis vitalba* L.**
Traveler's joy or old man's beard
Habitat/Range: Roadsides and disturbed sites; infrequent garden escape on SE Vancouver Island, the Gulf Islands and adjacent mainland; introduced from Eurasia and N Africa.

CONSOLIDA

***Consolida ambigua* (L.) Ball & Heywood** (*C. ajacis* [L.] Schur, *Delphinium ambiguum* L., D. *ajacis* L.)
Rocket larkspur
Habitat/Range: Roadsides; rare garden escape on SE Vancouver Island and the Gulf Islands; introduced from Europe.

COPTIS

1. Leaflets 3, toothed, not markedly lobed; petals without a blade beyond the nectary; scapes 1-flowered ..... *C. trifolia*

1. Leaflets 5 or more, toothed, deeply lobed; petals with a linear blade extending beyond the basal gland; scapes often more than 1-flowered ..... *C. asplenifolia*

***Coptis asplenifolia* Salisb.**
Fern-leaved or spleenwort-leaved goldthread
Habitat/Range: Moist forests and bogs in the lowland and montane zones; common W of the Coast-Cascade Mountains in BC; N to SW AK and S to N WA.

Coptis trifolia* (L.) Salisb. ssp. *trifolia
Three-leaved goldthread
Habitat/Range: Moist forests, bogs and wet sites in the lowland and montane zones; frequent W of the Coast-Cascade Mountains in BC, rare eastward; amphiberingian, N to AK; Siberia, Japan.

DELPHINIUM

1. Stems hollow, 10-20 dm tall ..... *D. glaucum*

1. Stems solid or nearly so, less than 10 dm tall.
   2. Leaves more or less uniformly distributed on stem.
      3. Roots fleshy, elongate; leaves distinctly dimorphic; seeds conspicuously winged; plants of SC and SE BC ..... *D. burkei*
      3. Roots 1-several small fusiform to globose tubers; leaves not noticeably dimorphic; seeds slightly winged; plants of SW BC ..... *D. menziesii*
   2. Leaves mostly basal or sub-basal.
      4. Calyces 7-12 mm long, usually glandular-villous ..... *D. depauperatum*
      4. Calyces (10) 15-25 mm long, not glandular-villous.
         5. Lower petals notched over ⅛ the length of the blade, often white or pale blue .... *D. nuttallianum*
         5. Lower petals notched less than ⅛ the length of the blade, deep blue ..... *D. bicolor*

***Delphinium bicolor* Nutt.**
Montana larkspur
Habitat/Range: Dry sites in the steppe vegetation to subalpine zones; rare in SE BC; E to SK and S to SD and WY.

***Delphinium burkei* Greene**
Burke's larkspur
Habitat/Range: Wet to moist sites in the steppe vegetation and lower montane zones; frequent in SC BC, rare in SE BC; S to ID and E OR.

***Delphinium depauperatum* Nutt. in T.& G.**
Slim or dwarf larkspur
Habitat/Range: Moist to mesic sites from the steppe vegetation to subalpine zones; rare, known only from Sage Creek area in SE BC; S to MT, NV and NE CA.

***Delphinium glaucum* S. Wats.**
Tall larkspur
Habitat/Range: Moist to mesic sites from the montane to alpine zones; common throughout BC east of the Coast-Cascade Mountains, except extreme S BC; N to AK, YT and NT, E to SK and S to NV and CA.

Delphinium menziesii* DC. ssp. *menziesii
Menzies' larkspur
Habitat/Range: Mesic bluffs and openings in the lower montane zone; common in SW BC; S to CA.

Delphinium nuttallianum* Pritz. ex Walpers var. *nuttallianum
Upland or Nuttall's larkspur
Habitat/Range: Mesic to dry sites in the steppe vegetation and montane zones; common in S BC east of the Coast-Cascade Mountains; E to SW AB and S to NE, CO, AZ and N CA.

ISOPYRUM

***Isopyrum savilei* Calder & Taylor**
Queen Charlotte isopyrum
Habitat/Range: Moist shady cliffs and talus slopes from the lowland to alpine zones; locally frequent on the Queen Charlotte Islands, N Vancouver Island and Porcher Island; endemic.

MYOSURUS[9]

1. Beak of the achenes well developed, more than 0.5 mm long; mature spikes mostly 5-10 mm long; sepals usually 1-nerved ..... *M. aristatus*

1. Beak of the achenes inconspicuous, usually less than 0.5 mm long; mature spikes mostly 15-50 mm long; sepals 3-, rarely 5-nerved ..... *M. minimus*

***Myosurus aristatus* Benth. ex Hook.** (*M. minimus* var. *aristatus* [Benth. ex Hook.] Boivin)
Bristly or sedge mousetail
Habitat/Range: Moist sites and vernal pools in the steppe vegetation zone; rare in SC BC; S to MT, WY, UT and CA.

***Myosurus minimus* L.** (*M. major* Greene, *M. minimus* var. *major* [Greene] Davis)
Tiny or least mousetail
Habitat/Range: Wet sites in the lowland and steppe vegetation zones; rare on Vancouver Island and east of the Coast-Cascade Mountains; E to ON and S to VA, NC, TX and CA; S Europe.

RANUNCULUS

Notes: Phenotypic plasticity, especially in vegetative parts of the plants, is extremely marked in the genus *Ranunculus*. The number of taxa described within each species complex is usually a good indication of the amount of variation or plasticity in the complex. Many taxonomists (e.g., Benson 1948, 1954; Brayshaw 1989) have been reluctant to accept such wide variation as belonging to a single variable taxon. Thus, they recognize numerous infraspecific entities, mainly on an arbitrary basis. Since this variation is due in large part to environmental conditions, it is not surprising to find that often the majority of herbaria specimens are intermediate between two 'infraspecific' taxa. In this treatment, especially where intermediates are the norm and therefore unkeyable (at least in a practical sense) or unmappable, 'infraspecific' taxa have usually been combined. This practical approach seems best until adequate studies show otherwise.

1. Petals white or whitish (very pale yellow in *R. testiculatus*, drying whitish).
   2. Plants terrestrial, introduced annuals; achenes densely woolly ..... *R. testiculatus*
   2. Plants aquatic, native perennials; achenes glabrous or hirsute.
      3. Plants glabrous; receptacles glabrous; achenes 2-7, glabrous ..... *R. lobbii*
      3. Plants more or less pubescent; receptacles hirsute; achenes 10-80, glabrous or more usually hirsute.
         4. Leaf blades sessile on the stipular base; achenes 30-80 ..... *R. circinatus*
         4. Leaf blades petiolate; achenes 10-25 ..... *R. aquatilis*
1. Petals yellow or yellowish.
   5. Leaves entire to serrate, sometimes shallowly lobed; achenes glabrous.
      6. Achenes 50-200 in a columnar head, longitudinally ribbed ..... *R. cymbalaria*
      6. Achenes 5-60 in a more or less globular head, not longitudinally ribbed.
         7. Stems decumbent to prostrate, rooting at the nodes; nectary scales usually broader than long .. .. *R. flammula*

[9] Key adapted from Hitchcock and Cronquist (1973).

7. Stems erect, not rooting at the nodes; nectary scales as long as broad ..... *R. alismaefolius*

5. Leaves all, or in part, deeply lobed to compound or dissected, if entire then the achenes finely pubescent.

8. Plants aquatic or semi-aquatic.

9. Plants annuals, erect, not nodally rooting; achene beaks inconspicuous ..... *R. sceleratus*

9. Plants perennials, usually floating or reclining, nodally rooting; achene beaks conspicuous.

10. Leaves, or at least the submersed ones, 3-5 times ternately dissected into ultimately filiform to narrowly oblong segments less than 2 mm wide; achenes corky-margined ... *R. flabellaris*

10. Leaves lobed or parted but not as above; achenes not corky-margined.

11. Leaves basically 3-lobed, distally rounded; achene beaks about one-tenth the length of achene body; receptacles glabrous, sepals and petals 3 each ..... *R. hyperboreus*

11. Leaves deeply 3-parted with narrow lobes, distally acute; achene beaks about one-forth the length of achene body; receptacles hirsute, sepals and petals 5 each ..... *R. gmelinii*

8. Plants not aquatic or semi-aquatic though sometimes found in wet sites.

12. Achenes longitudinally ribbed; petals 7-16 ..... *R. cooleyae*

12. Achenes not longitudinally ribbed; petals usually 5.

13. Sepals 3, rarely 4.

14. Petals 5-6; achenes glabrous, beaked; plants native to N BC ..... *R. lapponicus*

14. Petals 7, or more; achenes pubescent, beakless; plants introduced in SW BC ..... *R. ficaria*

13. Sepals 5, rarely more.

15. Sepals densely pilose with reddish-brown or blackish hairs.

16. Receptacles pubescent with reddish-brown hairs; achenes 50-90 ..... *R. sulphureus*

16. Receptacles glabrous; achenes 40-50 ..... *R. nivalis*

15. Sepals glabrous to pubescent, if densely pilose then with whitish or yellowish hairs.

17. Achenes strongly compressed, often discoid, never pubescent, usually distinctly keeled.

18. Achenes papillate and bristly to subglabrate, margins strongly thickened .... *R. sardous*

18. Achenes glabrous, more or less pubescent or sometimes sparsely hispid, margins not thickened.

19. Petals shorter than or barely surpassing the sepals, usually less than 7 mm long.

20. Basal leaf blades simple, the lobation not extending the full length; receptacles glabrous; achene beaks hooked ..... *R. uncinatus*

20. Basal leaf blades compound, the leaflets usually stalked; receptacles more or less short-hairy; achene beaks straight or nearly so.

21. Fruiting receptacles elongate, up to 12 mm long; achene beaks 0.5-0.9 mm long; petals shorter than the sepals; stems erect, never nodally rooting ..... *R. pensylvanicus*

21. Fruiting receptacles globose, up to 5 mm long; achene beaks 1.0-1.5 mm long; petals equal to or slightly exceeding the sepals; stems usually somewhat decumbent, rooting nodally .... *R. macounii*

19. Petals markedly longer than the sepals, usually well over 7 mm long.

22. Stems prostrate to decumbent, rooting at lower nodes; flowers often double; plants introduced ..... *R. repens*

22. Stems erect or spreading to decumbent, never rooting nodally; flowers not double; plants native.

23. Petals 8-16, or more; stems spreading to decumbent; plants rare on extreme SE Vancouver Island and adjacent islets .... *R. californicus*

23. Petals usually 5, rarely 8; stems more or less erect; plants common along the coast or in S BC.

24. Basal leaves pinnately 5- to 7-lobed; achenes about 3.5 mm long, the beaks 2.5-4 mm long, straight .... *R. orthorhynchus*

24. Basal leaves seldom pinnately lobed; achenes 2-3.5 mm long, the beaks 0.3-2 mm long, conspicuously to slightly curved.

25. Achenes 2-2.5 mm long, the beaks 0.3-0.6 mm long; sepals spreading ..... *R. acris*

25. Achenes 2.5-3.5 mm long, the beaks (0.5) 1-2 mm long; sepals reflexed ..... *R. occidentalis*

17. Achenes only moderately compressed, glabrous to finely pubescent, not noticeably keeled.

26. Achenes in a globular or semiglobular cluster; petals 6-15 mm long.

27. Leaves crenate-margined; scale of the nectary usually not lobed or ciliate on the upper margin; plants of NE BC ..... *R. rhomboideus*

27. Leaves entire or shallowly 3-5 lobed near apex; scale of the nectary often shallowly lobed and sometimes finely ciliate on the upper margin; plants of C and S BC ..... *R. glaberrimus*

26. Achenes in an elongate cluster; petals usually less than 6 mm long.

28. Achenes finely pubescent to glabrate.

29. Petals (if any) 2-6 (rarely 8) mm long; sepals glabrous or thinly pubescent ..... *R. inamoenus*

29. Petals 8-15 mm long; sepals pilose.

30. Basal leaves 5-7-lobed at least half their length; nectary scales not ciliate; achene beaks curved; plants of SC BC ... *R. pedatifidus*

30. Basal leaves, or at least some of them, merely crenate or lobed less than half their length; nectary scales ciliate; achene beaks nearly or quite straight; plants of NE and SE BC ..... *R. cardiophyllus*

28. Achenes glabrous.

31. Petals usually 7-16 mm long, if shorter then the achene beaks straight and the leaves shallowly to deeply lobed ..... *R. eschscholtzii*

31. Petals 1.5-5 mm long.

32. Stems erect, 1.5-5 dm tall; leaves mostly deeply crenate .... *R. abortivus*

32. Stems usually spreading, 0.3-2 dm tall; leaves shallowly to deeply lobed or dissected.

33. Petals 1.5-3 (rarely 3.5 mm) long; basal leaf blades less than 1 cm long; achene beaks often straight, sometimes curved ... . *R. pygmaeus*

33. Petals 3.5-5 mm long; basal leaf blades, or at least some of them, over 1 cm long; achene beaks curved.

34. Stems 7-20 cm tall; achenes 1-1.5 mm long .... *R. verecundus*

34. Stems 3-9 cm tall; achenes 2-2.5 mm long .... *R. grayi*

Ranunculus abortivus **L.** (*R. abortivus* var. *acrolasius* Fern.)

Kidney-leaved buttercup

Habitat/Range: Moist sites from the lowland to subalpine zones; frequent throughout BC east of the Coast-Cascade Mountains, rare along the coast; N to AK, YT and NT, E to NF and S to ID, CO, FL, TX and WA, Cuba.

Ranunculus acris **L.**

Meadow or tall buttercup

Habitat/Range: Moist to mesic sites in the lowland, steppe vegetation and montane zones; common in BC S of 56°N; introduced from Eurasia.

Ranunculus alismaefolius **Geyer ex Benth. var.** ***alismaefolius***

Water-plantain buttercup

Habitat/Range: Wet ponds and shores to moist meadows from the lowland to alpine zones; rare, known only from the Victoria area; S to MT, ID and CA.

Ranunculus aquatilis **L.** (*R. trichophyllus* Chaix. in Villars = var. *capillaceus*, *R. trichophyllus* var. *hispidulus* [E.R. Drew] W.B. Drew)

White water-buttercup or water-crowfoot

Habitat/Range: Ponds and slow-moving streams in the lowland, steppe vegetation and montane zones; var. *capillaceus* - frequent throughout BC; var. *hispidulus* - frequent in SW BC, rare in S BC east of the Coast-Cascade Mountains; var. *capillaceus* - throughout N America north of MX; var. *hispidulus* - N to AK, YT and NT and S to MT, WY, UT and CA.

Notes: The taxonomy of the *R. aquatilis* complex, at least in North America, still remains unclear. Our plants (especially var. *hispidulus*) are closely related to, but not identical with, the European plants. The recognition of only two varieties in BC, at least until taxonomic problems are resolved, appears to be the only realistic treatment.

1. Floating leaves simple and dissimilar to the submerged, filiform leaves ..... var. *hispidulus* E.R. Drew
1. Floating leaves, if any, similar to the submerged, filiform leaves .... var. *capillaceus* (Thuill.) DC.

***Ranunculus californicus* Benth.** (*R. californicus* var. *cuneatus* Greene)
California buttercup
Habitat/Range: Coastal bluffs and meadows; rare on extreme SE Vancouver Island and adjacent islets; S to CA.
Notes: Forms hybrid swarms with *R. occidentalis* (*R.* x *heimburgerae* T.C. Brayshaw) in our area. May no longer occur on Vancouver Island.

***Ranunculus cardiophyllus* Hook.** (*R. pedatifidus* var. *cardiophyllus* [Hook.] Britt.)
Heart-leaved buttercup
Habitat/Range: Moist to mesic openings and meadows in the steppe vegetation, montane and subalpine zones; rare, known only from the Dawson Creek area and Crowsnest Pass; N to NT, E to SK and S to WY, UT, NM, AZ and NE WA.

***Ranunculus circinatus* Sibth. var. *subrigidus* (W.B. Drew) Benson** (*R. amphibius* James, *R. aquatilis* var. *subrigidus* [W.B. Drew] Breit., *R. subrigidus* W.B. Drew)
Stiff-leaved water-buttercup
Habitat/Range: Ponds and slow-moving streams in the lowland, steppe vegetation and montane zones; common in S BC east of Coast-Cascade Mountains, less frequent northward; N to YT and NT, E to NF and S to MA, MN, SD, TX and MX.
Notes: This variant of the European species is closely related to and often intergrades with *R. aquatilis* var. *capillaceus*. There is no sound evidence indicating that our taxon should be treated at the specific level.

***Ranunculus cooleyae* Vasey & Rose** (*Kumlienia cooleyae* [Vasey & Rose] Greene)
Cooley's buttercup
Habitat/Range: Wet to moist sites from the lowland to alpine zones; infrequent throughout BC; N to AK and S to WA.

***Ranunculus cymbalaria* Pursh** (*R. cymbalaria* var. *saximontanus* Fern.)
Shore buttercup
Habitat/Range: Moist saline or alkaline shoreline, marshes and meadows in the lowland, montane and steppe vegetation zones; common in S BC, less frequent northward; circumpolar, N to AK, YT and NT, E to NF and S to NJ, IL, AR, TX and MX; Eurasia.
Notes: Larger plants are sometimes recognized as var. *saximontanus* but these extremes intergrade completely and hardly appear justified.

***Ranunculus eschscholtzii* Schlecht.** (*R. eximius* Greene and *R. suksdorfii* A. Gray = var. *suksdorfii*)
Subalpine, mountain or snowpatch buttercup
Habitat/Range: Moist meadows, lake shores and talus slopes from the upper montane to alpine zones; var. *eschscholtzii* - common in S BC, less frequent northward, var. *suksdorfii* - rare in SE BC; N to AK, YT and NT, E to SW AB and S to CO, UT, AZ, NM and CA.
Notes: Two varieties, which completely intergrade, are tentatively recognized in BC.
1. Leaf segments usually round tipped, the middle lobe of the basal leaves entire to shallowly 3-lobed ..... var. *eschscholtzii*
1. Leaf segments usually acute, the middle lobe of the basal leaves entire to more often deeply lobed ..... var. *suksdorfii* (A. Gray) Benson

***Ranunculus ficaria* L.**
Lesser celandine
Habitat/Range: Waste places; rare garden escape in Saanich and Vancouver; introduced from Eurasia.

***Ranunculus flabellaris* Raf.**
Yellow water-buttercup or water-crowfoot
Habitat/Range: Ponds and shorelines in the steppe vegetation and montane zones; rare and scattered in S BC east of the Coast-Cascade Mountains; E to PQ and NB and S to KS, NC, LA, UT, NV and N CA.
Notes: This species is closely related to *R. gmelinii*. Last collected in 1949.

***Ranunculus flammula* L.** (*R. filiformis* Michx., *R. flammula* var. *ovalis* [Bigel.] Benson, *R. reptans* L.)
Lesser spearwort
Habitat/Range: Shorelines and wet meadows in the lowland, steppe vegetation and montane zones; common throughout BC; circumpolar, N to AK, YT and NT, E to NF and S to MN, CO and CA; Greenland, Eurasia.
Notes: Separation of this species into infraspecific taxa, based mainly on leaf width and flower size, is arbitrary at best. See Calder and Taylor (1968) or Brayshaw (1989) for alternate treatments.

***Ranunculus glaberrimus* Hook.** (*R. ellipticus* Greene and *R. glaberrimus* var. *buddii* Boivin = var. *ellipticus)*
Sagebrush buttercup
Habitat/Range: Mesic to dry sandy sites and open forests in the steppe vegetation and montane zones; common in S BC east of the Coast-Cascade Mountains, infrequent northward; S to NB, ND, NM and CA.
Notes: Two sympatric and intergrading varieties occur in BC.
1. Basal leaf blades ovate to obovate, usually shallowly lobed; cauline leaves usually entire ..... var. *glaberrimus*
1. Basal leaf blades oblanceolate to elliptic, usually entire; cauline leaves entire to 3-lobed ..... var. *ellipticus* Greene

***Ranunculus gmelinii* DC.** (*R. gmelinii* var. *hookeri* [G. Don] Benson, *R. gmelinii* var. *limosus* [Nutt. in T. & G.] Hara)
Small yellow water-buttercup
Habitat/Range: Ponds, shallow streams and wet sites in the lowland, steppe vegetation and montane zones; common throughout BC except rare along the coast; amphiberingian, N to AK, YT and NT, E to NF and S to MA, IA, MI, SD, UT, NM, and OR; E Asia.
Notes: There are no reliable morphological differences for recognition of infraspecific taxa (Scott 1974). This species is closely related to *R. flabellaris*.

***Ranunculus grayi* Britt.** (*R. gelidus* auct. non Kar. & Kir., *R. gelidus* Kar. & Kir. ssp. *grayi* [Britt.] Hult.)
Arctic buttercup
Habitat/Range: Meadows and talus slopes in the alpine zone; infrequent, scattered from NW to SE BC; N to AK, YT and NT, E to SW AB and S to CO.

***Ranunculus hyperboreus* Rottb.** (*R. natans* C.A. Mey. in Ledeb. var. *intertextus* [Greene] Benson)
Far-northern or arctic buttercup
Habitat/Range: Ponds and shores in the montane zone; frequent in N BC, rare southward to 53°N, circumpolar, N to AK, YT and NT, E to Labr. and PQ and S to CO; Greenland, Iceland, N Eurasia.

***Ranunculus inamoenus* Greene** (*R. alpeophilus* A. Nels.)
Unlovely buttercup
Habitat/Range: Moist to mesic meadows in the subalpine and alpine zones; infrequent E of the Coast-Cascade Mountains, E to AB and S to CO, UT, AZ and WA.

***Ranunculus lapponicus* L.**
Lapland buttercup
Habitat/Range: Moist sites in the montane zone; common E of the Coast-Cascade Mountains N of 53°N; circumpolar, N to AK, YT and NT, E to Greenland and S to ME; N Eurasia.
Notes: At first glance this species could be mistaken for *Anemone richardsonii*.

***Ranunculus lobbii* (Hiern) A. Gray**
Lobb's water-buttercup
Habitat/Range: Vernal pools and wet sites in the lowland zone; rare on SE Vancouver Island; S to CA. Last collected in 1948.

***Ranunculus macounii* Britt.**
Macoun's buttercup
Habitat/Range: Wet to moist sites in the lowland, steppe vegetation and montane zones; var. *macounii* - common throughout BC except rare near the coast, var. *oreganus* - rare in SE BC; N to AK, YT and NT, E to NF and S to MI, MN, NE, NM, AZ and N CA.
Notes: Two varieties occur in BC.
1. Plants moderately to densely hirsute ..... var. *macounii*
1. Plants glabrous to subglabrous ..... var. *oreganus* (A. Gray) Davis

***Ranunculus nivalis* L.**
Snow buttercup
Habitat/Range: Moist sites in the subalpine and alpine zones; frequent in BC north of 55°N and E of the Coast Mountains; circumboreal, N to AK, YT and NT and E to Labr. and Greenland; Eurasia.

***Ranunculus occidentalis* Nutt. in T.& G.** (*R. hexasepalus* Benson; *R. nelsonii* [DC.] Benson, *R. occidentalis* var. *brevistylis* Greene)
Western buttercup
Habitat/Range: Moist to mesic sites from the lowland to montane zones; common in coastal BC, infrequent elsewhere; N to AK, YT and NT, E to AB and S to CA.
Notes: This highly variable species is often separated into numerous infraspecific taxa (Benson 1948, Scoggan 1978). The treatment by Benson (1948) is unacceptable for our BC material (see Calder and Taylor 1968). It is interesting to note that several authors fail to recognize varieties when annotating specimens in major herbaria, even though they provide keys to varieties in their texts. This may be due to the fact that herbaria specimens are often intermediate between the recognized extremes.

***Ranunculus orthorhynchus* Hook.** (*R. orthorhynchus* var. *alaschensis* Benson = var. *orthorhynchus*)
Straight-beaked buttercup
Habitat/Range: Wet to moist sites in the lowland, steppe vegetation and montane zones; var. *orthorhynchus* - common in coastal BC, rare inland; var. *platyphyllus* - rare along the coast, more frequent inland in S BC; N to SE AK and S to WY, UT, NV and CA.
Notes: Two varieties are recognized in BC.
1. Petals yellow, tinged with red or purple, usually over twice as long as broad ..... var. *orthorhynchus*
1. Petals yellow, not tinged with red or purple, usually less than twice as long as broad ..... var. *platyphyllus* A. Gray

***Ranunculus pedatifidus* J.E. Smith in Rees** (*R. affinis* R. Br., *R. pedatifidus* var. *leiocarpus* [Trautv.] Fern.)
Birdfoot buttercup
Habitat/Range: Moist meadows in the montane to alpine zones; rare, known only from Cathedral Lakes Provincial Park; circumpolar, N to AK, YT and NT, E to NF and S to NJ, WY, CO, NM and AZ; Eurasia.
Notes: Further study is required to clarify the differences, if any, between our plants and those from Eurasia.

***Ranunculus pensylvanicus* L.f.**
Pennsylvania buttercup, or bristly crowfoot
Habitat/Range: Wet to moist sites in the lowland and montane zones; frequent S of 56°N east of the Coast-Cascade Mountains, rare westward; E to NF and S to NJ, NM, AZ and WA.

***Ranunculus pygmaeus* Wahlenb.** (*R. pygmaeus* var. *langeanus* Nathorst)
Pygmy or dwarf buttercup
Habitat/Range: Moist sites in the subalpine and alpine zones; infrequent, scattered throughout BC; circumpolar, N to AK, YT and NT, E to Labr. and Greenland and S to CO; Iceland, N. Eurasia.

***Ranunculus repens* L.** (*R. repens* var. *glabratus* DC., var. *pleniflorus* Fern., and var. *villosus* Lamotte)
Creeping or swamp buttercup
Habitat/Range: Lawns, disturbed sites and wet ditches; common in SW BC, less frequent N on the coast; introduced from Eurasia.

***Ranunculus rhomboideus* Goldie**
Prairie buttercup
Habitat/Range: Dry grasslands and open forests in the steppe vegetation and montane zones; rare in NE BC; N to NT, E to ON and S to MA, NB and IL. Last collected in 1943 at Hudson Hope.

***Ranunculus sardous* Crantz** (*R. parvulus* L.)
Hairy buttercup
Habitat/Range: Roadsides and waste places; rare in the Gulf Islands; introduced from Eurasia.

***Ranunculus sceleratus* L. ssp. *multifidus* (Nutt.) Hult.**
Celery-leaved buttercup, or cursed crowfoot
Habitat/Range: Ponds and wet sites in the lowland, steppe vegetation and montane zones; common in S BC east of the Coast-Cascade Mountains, infrequent elsewhere; N to AK, YT and NT, E to PQ and NB and S to LA, FL, MN, IA, NM, AZ and N CA.
Notes: The introduced ssp. *sceleratus*, with more deeply cleft basal leaves and cross-corregated achene faces, is known from a single collection at Osoyoos.

***Ranunculus sulphureus* Soland. ex Phipps** (*R. sulphureus* var. *intercedens* Hult.)
Sulphur buttercup
Habitat/Range: Moist meadows, bogs or gravelly sites in the alpine zone; rare in N BC, known only from Spatsizi and Liard Plateaus; circumpolar, N to AK, YT and NT and E to Labr.; Greenland, N Eurasia.

***Ranunculus testiculatus* Crantz** (*Ceratocephalus testiculatus* [Crantz] Roth)
Hornseed buttercup
Habitat/Range: Dry disturbed sites in the steppe vegetation zone; rare in SC BC; introduced from Eurasia.

***Ranunculus uncinatus* D. Don in G. Don** (*R. uncinatus* var. *parviflorus* [Torr.] Benson)
Little or small-flowered buttercup
Habitat/Range: Moist sites in the lowland, steppe vegetation and montane zones; common in BC S of 56°N, rare in NW BC; N to AK and NT, E to AB and S to CO, AZ and CA.
Notes: Recognition of infraspecific entities does not appear warranted.

***Ranunculus verecundus* B.L. Robins. in Piper**
Modest buttercup
Habitat/Range: Wet sites from the lowland to alpine zones; infrequent, scattered across extreme S BC; E to SW AB and S to ID, MT and OR, also reported from AK.

THALICTRUM[10]

1. Flowers perfect; plants either scapose or subscapose or with anthers not over 1 mm long.
   2. Plants scapose or subscapose, 0.3-2.5 dm tall; filaments filiform; anthers about 1.5 mm long ..... *T. alpinum*
   2. Plants leafy-stemmed, 3-10 dm tall; filaments somewhat clavate; anthers about 0.7 mm long ..... *T. sparsiflorum*
1. Flowers, at least in part, male or female; plants leafy-stemmed; anthers at least 1 mm.
   3. Leaflets 3-lobed, lobes usually entire, usually hairy beneath, longer than broad; achenes usually brownish-hairy ..... *T. dasycarpum*
   3. Leaflets 3-7-lobed, if 3-lobed then lobes usually again less deeply lobed or toothed, glabrous or glandular-puberulent below, often broader than long; achenes glabrous or glandular-puberulent.
      4. Achenes spreading to reflexed, usually over 5 mm long; peduncles wide-spreading, all of about the same length; filaments 4-10 mm long; leaf margins not revolute ..... *T. occidentale*
      4. Achenes usually ascending to erect, usually less than 5 mm long; peduncles ascending, of varying length; filaments 3-5 mm long; leaf margins revolute ..... *T. venulosum*

***Thalictrum alpinum* L.** (*T. alpinum* var. *hebetum* Boivin)
Alpine meadowrue
Habitat/Range: Moist alpine meadows; frequent N of 56°N in BC, rare on the Queen Charlotte Islands; circumpolar, N to AK, YT and NT, E to NF and S to UT, NM and CA; Greenland, Iceland, Eurasia.

***Thalictrum dasycarpum* Fisch. & Ave-Lall. in Fisch. & Mey.** (*T. dasycarpum* var. *hypoglaucum* [Rydb.] Boivin)
Purple meadowrue
Habitat/Range: Wet sites in the steppe vegetation and lower montane zones; rare in SE BC; E to NB and NS and S to LA, FL, NM, AZ and NE WA.

***Thalictrum occidentale* A. Gray** (*T. breitungii* Boivin, *T. occidentale* var. *breitungii* [Boivin] T.C. Brayshaw, var. *macounii* Boivin, and var. *palousense* St. John)
Western meadowrue
Habitat/Range: Wet to mesic sites from the lowland to montane zones; common throughout BC except Queen Charlotte Islands, N Vancouver Island and the adjacent coast; N to SE AK, YT and NT, E to SK and S to CO, UT and N CA.
Notes: A highly variable species, without sufficiently differentiated phases. Sometimes difficult to separate from *T. venulosum*.

***Thalictrum sparsiflorum* Turcz. ex Fisch. & Mey. var. *richardsonii* (A. Gray) Boivin**
Few-flowered meadowrue
Habitat/Range: Moist sites in the montane zone; frequent in N BC, less frequent S to 53°N, amphiberingian, N to AK, YT and NT, E to ON and S to CO, UT and CA; Siberia.

***Thalictrum venulosum* Trel.** (*T. columbianum* Rydb., *T. confine* Fern. var. *columbianum* [Rydb.] Boivin)
Veiny meadowrue
Habitat/Range: Moist to mesic sites in the steppe vegetation and montane zones; frequent in BC east of the Coast-Cascade Mountains; N to YT and NT, E to PQ and S to MN, WI, SD, WY and OR.

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[10] Key adapted from Hitchcock *et al.* (1964).

TRAUTVETTERIA

***Trautvetteria caroliniensis* (Walter) Vail** (*T. caroliniensis* var. *occidentalis* [A. Gray] C.L. Hitchc.)
False bugbane
Habitat/Range: Moist forests in the lowland and montane zones; common on Vancouver Island and the adjacent coast N to Dean Channel, rare in SE BC; S to MO, PA, FL, NM, ID and OR.

TROLLIUS

***Trollius laxus* Salisb. ssp. *albiflorus* [A. Gray in Parry] Löve, Löve & Kapoor** (*T. albiflorus* [A. Gray in Parry] Rydb.)
Globeflower
Habitat/Range: Wet to moist meadows in the subalpine and alpine zones; common in S to central BC, mainly E of the Coast-Cascade Mountains; E to SW AB and S to CT, MI, PA, CO and WA.

RESEDACEAE

RESEDA[11]

1. Leaves 3- to several-lobed mostly above the midpoint of the blade; petals yellowish to greenish-yellow; stamens 15-25; seeds pyriform, smooth and shining ..... *R. lutea*
1. Leaves uniformly pinnatifid from the base of the blade; petals whitish to greenish-white; stamens usually 10; seeds reniform, regularly and finely papillose, dull ..... *R. alba*

***Reseda alba* L.**
White mignonette
Habitat/Range: Fields and waste places; rare in SW BC; introduced from Eurasia.

***Reseda lutea* L.**
Yellow mignonette
Habitat/Range: Fields and waste places; rare in SW and SC BC; introduced from Eurasia.

RHAMNACEAE

1. Fruits berry-like drupes; flowers greenish; petals short-clawed or absent ..... *Rhamnus*
1. Fruits dry, hardened capsules; flowers white; petals long-clawed ..... *Ceanothus*

CEANOTHUS

1. Leaves evergreen, glutinous and shining above ..... *C. velutinus*
1. Leaves deciduous, not glutinous or shining above ..... *C. sanguineus*

***Ceanothus sanguineus* Pursh**
Redstem ceanothus
Habitat/Range: Mesic to dry sites in the lowland, steppe vegetation and montane zones; common in S BC, infrequent N to central BC; S to ID, MT and CA, disjunct in MI.

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[11] Key adapted from Hitchcock and Cronquist (1973).

***Ceanothus velutinus* Dougl. ex Hook.**

Snowbrush

Habitat/Range: Mesic to dry sites in the lowland, steppe vegetation and montane zones; common in S BC especially E of the Cascade Mountains; rare on Vancouver Island; E to SW AB and S to SD, CO and CA.

Notes: Two varieties occur in BC.

1. Leaves glabrous on lower surface, at least on the veins; plants occurring W of the Coast-Cascade Mountains ..... var. *laevigatus* (Hook.) T.& G.
1. Leaves finely puberulent on lower surface; plants occurring E of the Coast-Cascade Mountains ..... var. *velutinus*

RHAMNUS

1. Flowers 8-50 in pedunculate umbels; petals present; plants shrubs 0.5-1.5 m tall, of SE BC ..... *R. alnifolia*
1. Flowers 2-5 in sessile umbels; petals usually absent; plants tall shrubs or small trees 1-10 m tall, of S BC ..... *R. purshiana*

***Rhamnus alnifolia* L'Her.**

Alder-leaved buckthorn

Habitat/Range: Swamps and wet to moist meadows and streambanks in the steppe vegetation and montane zones; locally frequent in SE BC; E to NF and S to ME, OH, PA, ID, WY and CA.

***Rhamnus purshiana* DC.**

Cascara

Habitat/Range: Mesic to dry sites in the lowland, steppe vegetation and montane zones; common in S BC south of 51°N, rare on the Queen Charlotte Islands; S to ID, MT and CA.

ROSACEAE[12]

1. Ovaries superior; fruits achenes, follicles, drupes or many fused drupelets.
   2. Fruits fleshy (drupes or fused drupelets).
      3. Pistils many, becoming fused drupelets; leaves often compound ..... *Rubus*
      3. Pistils 1-5, becoming individual drupes; leaves simple.
         4. Pistils 1; drupes solitary; pith not chambered; trees with perfect flowers ..... *Prunus*
         4. Pistils 5; drupes often more than one; pith chambered; dioecious shrubs ..... *Oemleria*
   2. Fruits dry, achenes or follicles (receptacle becoming fleshy at maturity in *Duchesnea* and *Fragaria).*
      5. Leaves simple, at most lobed or divided.
         6. Plants herbs or prostrate shrubs.
            7. Flowers solitary; achenes plumose ..... *Dryas*
            7. Flowers in cymes or racemes; achenes not plumose.
               8. Plants trailing sub-shrubs; flowers in terminal racemes ..... *Luetkea*
               8. Plants herbaceous; flowers in cymes.

[12] Key adapted from Taylor (1973).

9. Petals present; stamens 5 ..... *Chamaerhodos*

9. Petals absent; stamens 2 or 4.

10. Cymes terminal; stamens 4; plants perennials with prominent basal rosette ..... *Alchemilla*

10. Cymes axillary; stamens 2; plants annuals lacking basal rosette ..... *Aphanes*

6. Plants erect shrubs.

11. Leaves 3-cleft; flowers solitary ..... *Purshia*

11. Leaves toothed or lobed; flowers in many-flowered inflorescences.

12. Leaves palmately veined and lobed ..... *Physocarpus*

12. Leaves pinnately veined and lobed.

13. Fruits achenes; lobes or teeth nearest the base of leaves the largest ..... *Holodiscus*

13. Fruits follicles; lobes or teeth more or less uniform ..... *Spiraea*

5. Leaves compound.

14. Leaves 3-foliolate.

15. Plants stoloniferous; receptacle conical, becoming fleshy at maturity.

16. Petals yellow; calyx bracteoles three or more lobed, much longer than sepals ..... *Duchesnea*

16. Petals white; calyx bracteoles simple, shorter than sepals ..... *Fragaria*

15. Plants not stoloniferous; receptacle flat, dry at maturity.

17. Corollas conspicuous; petals greater than 5 mm long, longer than sepals; stamens often more than 10 ..... *Potentilla*

17. Corollas inconspicuous; petals less than 5 mm long, equal to or shorter than sepals; stamens 5 or 10 ..... *Sibbaldia*

14. Leaves pinnately or palmately compound; leaflets more than 3.

18. Flowers male or female; leaves doubly ternately-compound ..... *Aruncus*

18. Flowers perfect; leaves once pinnately or palmately compound.

19. Achenes enclosed in hypanthium at maturity.

20. Hypanthium becoming bur-like at maturity, with hooked bristles ..... *Agrimonia*

20. Hypanthium not bur-like, lacking hooked bristles.

21. Plants prickly or bristly-stemmed shrubs; flowers with showy petals; hypanthium becoming fleshy at maturity ..... *Rosa*

21. Plants not prickly or bristly-stemmed, herbaceous; petals lacking; hypanthium not fleshy at maturity ..... *Sanguisorba*

19. Achenes not enclosed by hypanthium at maturity.

22. Styles persistent and elongated after anthesis, plumose or jointed ..... *Geum*

22. Styles usually deciduous, not elongated after anthesis ..... *Potentilla*

1. Ovaries inferior; fruits pomes.
   23. Leaves pinnately compound ..... *Sorbus*
   23. Leaves simple.
      24. Stems with stout thorns; carpels with hardened, shell-like covering, each one-seeded ..... *Crataegus*
      24. Stems lacking thorns (rarely produced on ends of short shoots in *Malus* and *Pyrus*); carpels lacking hardened covering, each two-seeded.
         25. Margins of leaves entire ..... *Cotoneaster*
         25. Margins of leaves toothed.
            26. Flowers in racemes; fruits blue-black at maturity ..... *Amelanchier*
            26. Flowers in cymes; fruits yellow to red at maturity.
               27. Fruits with grit-cells; leaves shiny above, glabrous throughout ..... *Pyrus*
               27. Fruits lacking grit cells; leaves dull above, often pubescent, especially beneath ..... *Malus*

AGRIMONIA

1. Plants with glandular and few long, spreading, non-glandular hairs in inflorescences and on upper stems ..... *A. gryposepala*
1. Plants lacking glandular hairs, but with short, ascending hairs in inflorescences and on upper stems ..... *A. striata*

***Agrimonia gryposepala* Wallr.**
Common agrimony
Habitat/Range: Edges of forests and thickets in the lowland to montane zones; infrequent in S BC; E to NF and S to CA, MO and NC.

***Agrimonia striata* A. Michx.**
Grooved agrimony
Habitat/Range: Open forests and meadows in the lowland to montane zones; infrequent in S BC east of the Coast-Cascade Mountains, disjunct in west-central BC; E to NF and S to AZ, NE and WV.

ALCHEMILLA

***Alchemilla subcrenata* Buser** (*Alchemilla vulgaris* L., pro parte)
Lady's mantle
Habitat/Range: Open, grassy areas in the montane zone; rare in C BC, known only from Wells and Barkerville; introduced from Europe.

AMELANCHIER

***Amelanchier alnifolia* (Nutt.) Nutt.**
Saskatoon
Habitat/Range: Open, often rocky places in the lowland to subalpine zones; common throughout BC, especially in C and S BC east of the Coast-Cascade Mountains; N to AK, E to AB and S to NE, ND, CO and AZ.

Notes: Four intergrading varieties occur in BC.

1. Petals less than 12 mm long; tops of ovaries strongly pubescent.
   2. Flowers generally with 4 styles; leaves entire or with a few tiny teeth near tips ..... var. *humptulipensis* (G.N. Jones) C.L. Hitchc.
   2. Flowers generally with 5 styles; leaves usually strongly toothed on upper half ..... var. *alnifolia*
1. Petals over 12 mm long; tops of ovaries weakly hairy or glabrous.
   3. Petals generally less than 16 mm long and 4 mm wide; calyx lobes averaging less than 3 mm long ..... var. *semiintegrifolia* (Hook.) C.L. Hitchc.
   3. Petals generally greater than 16 mm long and up to 8.5 mm wide; calyx lobes averaging more than 3 mm long ..... var. *cusickii* (Fern.) C.L. Hitchc.

APHANES

1. Plants delicate, stems less than 0.5 mm wide; principal cauline leaves (including stipular bases) less than 1 cm long; leaves scattered, with internodes longer than leaves ..... *A. occidentalis*
1. Plants more robust, stems nearly 1 mm wide; principal cauline leaves at least 1 cm long; leaves congested, with internodes shorter than leaves.
   2. Fruiting achenes greater than 2 mm long; stipule lobes triangular ..... *A. arvensis*
   2. Fruiting achenes less than 2 mm long; stipule lobes oblong ..... *A. microcarpa*

***Aphanes arvensis* L.**
Field parsley-piert
Habitat/Range: Waste places in the lowland zone; rare on the Gulf Islands and the lower mainland; introduced from Europe.

***Aphanes microcarpa* (Boiss. & Reuter) Rothm.**
Small-fruited parsley-piert
Habitat/Range: Waste places in the lowland zone; rare on the lower mainland; introduced from Europe.

***Aphanes occidentalis* (Nutt.) Rydb.** (*Alchemilla occidentalis* Nutt.)
Western parsley-piert
Habitat/Range: Open rocky, grassy areas, roadsides and vernally wet areas in the lowland zone; frequent in coastal BC, rare inland in S BC; S to CA.

ARUNCUS

***Aruncus dioicus* (Walt.) Fern.** (*Aruncus sylvester* Kostel.)
Goatsbeard
Habitat/Range: Edges of forests, streams and roadsides in the lowland to montane zones; common S of 55°N, rare northward; circumboreal, N to AK and S to CA; Eurasia.

CHAMAERHODOS

***Chamaerhodos erecta* (L.) Bunge in Ledeb. ssp. *nuttallii* (Pickering ex T.& G.) Hult.**
American chamaerhodos
Habitat/Range: Dry hillsides in the steppe vegetation zone; rare in C BC, east of the Coast-Cascade Mountains; amphiberingian, N to YT and S to MN, MI, ND and CO; Asia.

COTONEASTER

1. Plants low, horizontally spreading, less than 1 m tall; leaves less than 2 cm long; fruits usually borne singly, subsessile ..... *C. horizontalis*

1. Plants erect, more than 1 m tall; leaves 2-8 cm long; fruits borne in pedunculate corymbs of 2-many.

   2. Leaves 5-8 cm long; fruits dark red, borne in clusters of many more than 4 ..... *C. bullatus*

   2. Leaves 2-3 cm long; fruits orange-red, borne in clusters of 2-4 ..... *C. simonsii*

***Cotoneaster bullatus* Bois.**
Bullate-leaved cotoneaster
Habitat/Range: Edges of forests and disturbed places in the lowland zone; rare on the lower mainland; introduced from Asia.

***Cotoneaster horizontalis* Dcne.**
Rock cotoneaster
Habitat/Range: Waste places in the lowland zone; rare garden escape on S Vancouver Island and the Gulf Islands; introduced from Asia.

***Cotoneaster simonsii* Bak.**
Simons' cotoneaster
Habitat/Range: Edges of forests and disturbed places in the lowland zone; rare on the lower mainland; introduced from Asia.
Notes: A number of other *Cotoneaster* species are commonly cultivated as ornamentals in gardens, especially in SW BC. Some of these may be expected as escapes in our flora from time to time.

CRATAEGUS

1. Veins of leaves extending to sinuses as well as points of lobes; leaves deeply lobed, with sinuses reaching more than half way to midrib; style 1 ..... *C. monogyna*

1. Veins of leaves not extending to sinuses, only to points of lobes; leaves shallowly lobed; styles 2-5.

   2. Styles usually 2-4; thorns slender, more than 3 cm long; fruits red ..... *C. columbiana*

   2. Styles usually 5; thorns stout, 2 cm long or less; fruits black.

      3. Stamens 10; ovaries often hairy; leaves weakly lobed ..... *C. douglasii*

      3. Stamens 20; ovaries usually glabrous; leaves merely serrate or biserrate ..... *C. suksdorfii*

***Crataegus columbiana* Howell**
Red or Columbia hawthorn
Habitat/Range: Edges of forests and meadows in the lowland to montane zones; infrequent in BC east of the Coast-Cascade Mountains; E to AB and S to OR, ID and MT.

***Crataegus douglasii* Lindl.**
Black hawthorn
Habitat/Range: Edges of forests and open places in the lowland to montane zones; frequent in S BC north to 56°N; N to S AK, E to ON and S to SD, WY and CA.

***Crataegus monogyna* Jacq.**
Common hawthorn
Habitat/Range: Disturbed places and edges of forests in the lowland zone; infrequent in SW BC, rare inland; introduced from Europe.

***Crataegus suksdorfii* (Sarg.) Kruschke**

Suksdorf's hawthorn

Habitat/Range: Edges of forests and along streams in the lowland, steppe vegetation and montane zones; frequent in coastal BC, north to approximately 54°N, rare inland; S to CA and ID.

DRYAS

1. Petals yellow; sepals broadly ovate; filaments hairy toward base; leaf-bases cuneate .... *D. drummondii*
1. Petals white; sepals narrowly lanceolate to oblong-lanceolate; filaments glabrous; leaf-bases truncate to cordate.
   2. Median vein of underside of leaves eglandular; leaves broadest below middle, upperside not rugose; margins usually entire ..... *D. integrifolia*
   2. Median vein of underside of leaves glandular; leaves broadest toward middle, upperside rugose; margins usually uniformly crenate-dentate ..... *D. octopetala*

***Dryas drummondii* Richards. in Hook.**

Yellow mountain-avens

Habitat/Range: Gravelly, usually calcareous soils in the lowland to alpine zones; common throughout BC (except var. *eglandulosa* which is rare) E of the Coast-Cascade Mountains, rare W of; N to AK and NT, S to OR and E to NF.

Notes: Three varieties occur in BC.

1. Calyces densely silky pubescent; plants rare ..... var. *eglandulosa* Pors.
1. Calyces densely stipitate-glandular; plants common.
   2. Leaves glabrous and dark green above ..... var. *drummondii*
   2. Leaves canescent-tomentose and white above ..... var. *tomentosa* (Farr) Williams

***Dryas integrifolia* Vahl**

Entire-leaved or entire-leaved white mountain-avens

Habitat/Range: Gravel bars and talus slopes in the montane and alpine zones, frequent in N BC, S to 55°N, mostly E of Coast Mountains; N to AK and NT, E to NF and S to NH; Greenland.

Notes: Hybrids between this species and *Dryas octopetala* may occur where the two species grow together. Two subspecies with overlapping ranges occur in BC.

1. Leaf bases cuneate-truncate; blades flat ..... ssp. *sylvatica* (Hult.) Hult.
1. Leaf bases cordate-truncate; blades with revolute margins ..... ssp. *integrifolia*

***Dryas octopetala* L.** (*Dryas hookeriana* Juz. = ssp. *hookeriana*)

White mountain-avens

Habitat/Range: Gravel bars and rocky meadows in the alpine zone; ssp. *alaskensis* is rare in C BC while the ssp. *octopetala* and ssp. *hookeriana* are infrequent in S BC but more common northward; circumboreal, N to AK and NT, S to OR and CO and E to NF; Eurasia.

Notes: Hybrids between this species and *Dryas integrifolia* may occur where the two species grow together. Three subspecies occur in BC.

1. Upper leaf surfaces lacking sticky, sessile wart-like glands ..... ssp. *octopetala*
1. Upper leaf surfaces with sticky, sessile wart-like glands.
   2. Leaves linear to oblong, broadest above the middle; glabrate to thinly tomentose beneath .... ssp. *alaskensis* (Pors.) Hult.

2. Leaves ovate, broadest near or below middle; densely white-tomentose beneath ..... ssp. *hookeriana (Juz.) Hult.*

DUCHESNEA

Duchesnea indica (Andr.) Focke
Indian or false strawberry
Habitat/Range: Open forests and waste places in the lowland zone; rare in SW BC; introduced from Asia.

FRAGARIA

1. Leaves thick, strongly veined beneath, rugose above; plants strictly maritime ..... *F. chiloensis*
1. Leaves thin, not strongly veined beneath, nor rugose above; plants generally distributed.
   2. Terminal tooth of leaflets usually surpassing the adjacent lateral ones; leaflets generally sessile; peduncles of mature fruits shorter than leaves ..... *F. vesca*
   2. Terminal tooth of leaflets usually much narrower and shorter than adjacent lateral ones; leaflets petiolulate; peduncles of mature fruits longer than leaves ..... *F. virginiana*

Fragaria chiloensis **(L.) Duch.**
Coastal or Pacific coast strawberry
Habitat/Range: Sand dunes and coastal rocky bluffs, just above high tide, in the lowland zone; common in coastal BC; N to AK and S to CA; disjunct to South America.
Notes: The garden strawberry, *Fragaria* x *ananassa* Dcne. (a complex group of hybrids involving *F. chiloensis* and *F. virginiana*) is sometimes found as a garden escape in SW BC. Two sympatric subspecies occur in BC.
1. Hairs on stems and petioles appressed ..... ssp. *lucida* (Vilm.) Staudt
1. Hairs on stems and petioles spreading ..... ssp. *pacifica* Staudt

Fragaria vesca **L.**
Wood or woodland strawberry
Habitat/Range: Open forests and fields in all but the alpine zone; common in S BC south of 53°N; N to NT, E to NF and S to CA, NM, MO and VA.
Notes: Two subspecies with overlapping ranges occur in BC.
1. Flowers to 1.5 cm wide; achenes not sunken; pubescence of petioles appressed-ascending; scapes rarely with a leafy bract below inflorescence ..... ssp. *americana* (Porter) Staudt
1. Flowers to 2 cm wide; achenes in shallow pits; pubescence of petioles spreading or reflexed; scapes commonly with a unifoliate leafy bract below inflorescence ..... ssp. *bracteata* (Heller) Staudt

Fragaria virginiana **Duch.**
Wild strawberry
Habitat/Range: Fields and edges of forests in the lowland to montane zones; common throughout BC; N to AK and NT, E to NF and S to CA, CO, TN and GA.
Notes: Two subspecies with overlapping ranges occur in BC.
1. Pubescence of petioles and scapes appressed; petals mostly 5-10 mm long, narrowly obovate ..... ssp. *glauca* (S. Wats.) Staudt
1. Pubescence of petioles and scapes spreading; petals mostly 8-12 mm long, broadly obovate-orbicular ..... ssp. *platypetala* (Rydb.) Staudt

GEUM

1. Styles jointed at or above the middle, the terminal portion deciduous, the basal portion persistent, hooked.
   2. Sepals purple or reddish, spreading or ascending at anthesis; flowers nodding; petals erect or spreading ..... *G. rivale*
   2. Sepals green, reflexed at anthesis; flowers erect; petals spreading.
      3. Terminal segment of lower leaves many times larger than main lateral lobes, rounded or subcordate at base; persistent portion of styles sparsely glandular pubescent ..... *G. macrophyllum*
      3. Terminal segment of lower leaves somewhat larger than the main lateral lobes, cuneate at base; persistent portion of styles not glandular, although sometimes hirsute ..... *G. aleppicum*
1. Styles not jointed, nor deciduous.
   4. Petals erect to convergent; flowers vase-shaped; cauline leaves two or four, opposite, with sheathing bases ..... *G. triflorum*
   4. Petals spreading; flowers rotate; cauline leaves one to several, alternate, bases not sheathing.
      5. Basal leaves pinnatifid, elliptic, never lyrate; styles not conspicuously exserted from calyx in fruit; plants of NW BC ..... *G. rossii*
      5. Basal leaves lyrately pinnate; styles conspicuously exserted from calyx in fruit; plants of coastal BC.
         6. Terminal leaflets reniform to orbicular, never deeply lobed; lateral leaflets few, much reduced; caudex woody and covered with rufous-pubescent scales ..... *G. calthifolium*
         6. Terminal leaflets ovate and usually 3-lobed or cleft; lateral leaflets many, well-developed; caudex woody and covered with coarse fibres ..... *G. schofieldii*

***Geum aleppicum* Jacq.**

Yellow avens

Habitat/Range: Damp woods and meadows in the lowland and montane zones; frequent throughout BC east of the Coast-Cascade Mountains, rare on S Vancouver Island; circumboreal, E to NF and S to CA, NB and PA; Eurasia.

***Geum calthifolium* Menzies ex J.M. Smith in Rees**

Caltha-leaved avens

Habitat/Range: Bogs, wet slopes and meadows in the lowland to alpine zones; infrequent on the coastal islands and adjacent mainland; amphiberingian, N to AK; E Asia.

***Geum macrophyllum* Willd.** (*G. macrophyllum* var. *rydbergii* Farw. and *G. perincisum* Rydb. = ssp. *perincisum*)

Large-leaved avens

Habitat/Range: Open forests and fields in the lowland to montane zones; common throughout BC, except in driest parts of interior; amphiberingian, N to AK and NT, E to ON and S to MX; E Asia.

Notes: Two subspecies occur in BC.

1. Terminal segment of basal leaves shallowly rounded-lobed and minutely toothed; peduncles and pedicels commonly eglandular; plants from west of Coast-Cascade Mountains ..... ssp. *macrophyllum*
1. Terminal segment of basal leaves deeply lobed and coarsely toothed or incised; peduncles and pedicels strongly glandular; plants from east of Coast-Cascade Mountains ..... ssp. *perincisum* (Rydb.) Hult.

***Geum rivale* L.**
Water avens
Habitat/Range: Marshes, streambanks and moist forests in the lowland to montane zones; frequent throughout BC east of the Coast-Cascade Mountains; circumboreal, E to NF and S to CA, NM, MO and PA; Eurasia.

***Geum rossii* (R. Br.) Ser. in DC.**
Ross' avens
Habitat/Range: Calcareous soil in the alpine zone; rare in NW BC, known only from Yehiniko Lake; amphiberingian, N to AK and NT and S to NV, NM and AZ; E Asia.

***Geum schofieldii* Calder & Taylor**
Queen Charlotte avens
Habitat/Range: Wet rock crevices in the lowland to montane zones; endemic, rare in the Queen Charlotte Islands and W Vancouver Island.
Notes: Considered by some authors to be of hybrid origin between *G. rossii* and *G. calthifolium*.

***Geum triflorum* Pursh**
Old man's whiskers
Habitat/Range: Dry hills and meadows in the steppe vegetation, montane and alpine zones; common in BC east of the Coast-Cascade Mountains, north to about 57°N; E to NF and S to CA, NM, NE, IL and NY.
Notes: Two varieties occur in BC.

1. Flowers commonly 3; terminal segment of styles usually persistent; sepals lanceolate ..... var. *triflorum*
1. Flowers commonly more than 3; terminal segment of styles usually deciduous; sepals lance-ovate ..... var. *ciliatum* (Pursh) Fassett

HOLODISCUS

***Holodiscus discolor* (Pursh) Maxim.**
Oceanspray or creambush
Habitat/Range: Coastal bluffs, rocky open forests in the lowland to montane zones; common in S BC, disjunct in mountains of Bella Coola valley; S to ID, MT and CA.

LUETKEA

***Luetkea pectinata* (Pursh) Kuntze**
Partridgefoot
Habitat/Range: Meadows and scree slopes in the montane to alpine zones; common throughout BC, except NE; N to AK, YT and NT, E to W AB and S to ID, MT and N CA.

MALUS

1. Styles usually 5; fruits well over 2 cm in diameter; leaves not lobed ..... *M. pumila*
1. Styles usually 3; fruits less than 2 cm in diameter; leaves, at least some of them, lobed ..... *M. fusca*

***Malus fusca* (Raf.) Schneid.** (*Pyrus fusca* Raf., *P. diversifolia* Bong.)
Pacific crab apple
Habitat/Range: Moist, open forests, streambanks and bogs in the lowland zone; common on coastal islands and adjacent mainland; N to AK and S to CA.

***Malus pumila* Mill.** (*M. domestica* Borkh., *M. sylvestris* [L.] Mill., *Pyrus malus* L.)
Cultivated apple
Habitat/Range: Edges of forests, thickets and waste places in the lowland, steppe vegetation and montane zones; rare throughout BC; introduced from Europe.

OEMLERIA

***Oemleria cerasiformis* (T.& G. ex Hook. & Arn.) Landon** (*Osmaronia cerasiformis* [T.& G. ex Hook. & Arn.] Greene)
Indian-plum
Habitat/Range: Open forests and streambanks in the lowland zone; frequent on Vancouver Island, the Gulf Islands and the adjacent mainland; S to N CA.

PHYSOCARPUS

1. Follicles 3-5, glabrous except along sutures, united at the base ..... *P. capitatus*
1. Follicles 2, densely stellate pubescent, united for at least half their length ..... *P. malvaceus*

***Physocarpus capitatus* (Pursh) Kuntze** (*P. opulifolius* [L.] Maxim.)
Pacific ninebark
Habitat/Range: Moist forests, streambanks and roadsides in the lowland to montane zones; frequent in S BC; N to AK and S to N ID and CA.

***Physocarpus malvaceus* (Greene) Kuntze**
Mallow ninebark
Habitat/Range: Dry, rocky hillsides and open forests in the montane zone; locally frequent in SE BC; E to AB and S to WY, UT and OR.

POTENTILLA

1. Petals dark red to purple; plants of wet habitats ..... *P. palustris*
1. Petals yellow to white; plants usually of drier habitats.
   2. Plants woody shrubs; achenes hairy ..... *P. fruticosa*
   2. Plants herbaceous (or with short woody caudex); achenes glabrous.
      3. Flowers solitary on naked peduncles; plants stoloniferous ..... *P. anserina*
      3. Flowers several on leafy stems; plants not stoloniferous.
         4. Plants annuals or biennials (rarely short-lived perennials) from taproots; leaves not white-tomentose beneath.
            5. Mature achenes with a thickened wedge-shaped appendage nearly as large as rest of achene; stamens 20 or more; lower leaves pinnately 5-9 foliolate ..... *P. paradoxa*

5. Mature achenes lacking a conspicuous appendage; stamens usually 10-20; lower leaves 3-foliolate or palmately 3-5-foliolate.

6. Stems stiffly hirsute below, with unicellular, spreading, often pustular-based hairs; achenes strongly undulate-corrugate ..... *P. norvegica*

6. Stems soft-pubescent below, with multicellular hairs; achenes smooth or very slighty striate.

7. Stems lanate below, eglandular; calyces eglandular; lower cauline leaves often 5-foliolate ..... *P. rivalis*

7. Stems hirsute and glandular below; calyces glandular; lower cauline leaves 3-foliolate ..... *P. biennis*

4. Plants perennials, with well-developed rootstocks; leaves often white-tomentose beneath.

8. Styles slender, tapering at both ends, thickened and roughened at or below midlength, attached below midlength of ovary; leaves pinnate, with 5-11 leaflets; stamens usually about 25.

9. Cymes short, dense, with lateral branches erect; stems stout, 30-100 cm tall, densely viscid-villous; petals 6-8 mm long ..... *P. arguta*

9. Cymes open, with lateral branches somewhat spreading; stems not stout, 10-50 cm tall, not densely viscid-villous; petals less than 6 mm long ..... *P. glandulosa*

8. Styles tapering from base, often attached near top of ovary; leaves palmate or pinnate; stamens often 20.

10. Basal leaves predominately odd-pinnate, usually with 5 or more leaflets, rarely a few leaves ternate.

11. Styles thickened and glandular, shorter than the mature achenes.

12. Leaflets 5-7 in close pairs (often appearing digitate), commonly incised almost to midrib; flowers 1 cm or less wide; petals shorter than sepals ..... *P. bipinnatifida*

12. Leaflets 7-9 or more in remote pairs, commonly incised about halfway to midrib; flowers 1 cm or more wide; petals longer than sepals ..... *P. pensylvanica*

11. Styles filiform, not glandular, as long as, to much longer than mature achenes.

13. Leaves in close pairs (appearing digitate) or some truly digitate ..... *P. diversifolia*

13. Leaves distinctly pinnate.

14. Stems and leaves green and glabrous or with a few soft hairs ..... *P. drummondii*

14. Stems and leaves grey, densely tomentose.

15. Leaflets toothed, not dissected more than half way to midrib, usually greyer beneath than above; plants infrequent in interior ... *P. hippiana*

15. Leaflets dissected nearly to the base into narrow linear segments, grey throughout; plants rare in extreme SE BC ..... *P. ovina*

10. Basal leaves digitate.

16. Leaves predominately 5-9-foliolate.

17. Mature achenes reticulate; stems hirsute-hispid; leaves predominately cauline, green on both sides ..... *P. recta*

17. Mature achenes smooth; stems glabrous to lanate or tomentose, not hispid; leaves often strongly basal, often white beneath.

    18. Flowers less than 1 cm wide; cauline leaves numerous (6-10), only gradually reduced upward ..... *P. argentea*

    18. Flowers more than 1 cm wide; cauline leaves few (1-3), abruptly reduced to bracts.

        19. Plants 15-45 cm tall; leaflets 1-3 cm long, usually green or equally greyish-sericeous on both surfaces; anthers about 0.5 mm long; plants alpine or subalpine ..... *P. diversifolia*

        19. Plants 30-80 cm tall; leaflets 3-8 cm long, usually tomentose beneath or much paler on lower than on upper surface; anthers about 1 mm long; plants lowland to montane ..... *P. gracilis*

16. Leaves predominately 3-foliolate.

    20. Leaves not tomentose; styles usually not warty or papillate at base.

        21. Leaflets merely toothed, not divided.

            22. Stems usually less than 10 cm tall, decumbent; leaflets obovate, pilose; petals 5-8 mm long ..... *P. hyparctica*

            22. Stems 10-30 cm tall, erect; leaflets cuneate, flabelliform, glabrous or very sparsely pubescent; petals 8-20 mm long ..... *P. flabellifolia*

        21. Leaflets divided to the middle or lower.

            23. Leaflets small, 3-6 mm long, divided to about the middle into linear-oblong, obtuse lobes; petals 2-4 mm long ..... *P. elegans*

            23. Leaflets larger, 8-15 mm long, divided to the base into linear lobes; petals 5-8 mm long ..... *P. biflora*

    20. Leaves more or less tomentose beneath; styles usually warty or papillate at base.

        24. Basal leaves in part 5-foliolate, dissected halfway to midrib ..... *P. quinquefolia*

        24. Basal leaves all 3-foliolate, toothed, dissected less than halfway to midrib.

            25. Plants densely villous throughout; persistent stipules very dark brown; flowers usually more than 2 cm wide; bracteoles elliptic-oval ..... *P. villosa*

            25. Plants not densely villous; stipules usually rusty coloured; flowers less than 2 cm wide; bracteoles linear to linear-lanceolate.

                26. Petioles tomentose, lacking long villous hairs ..... *P. nivea*

                26. Petioles short puberulent or with long villous hairs, not tomentose.

                    27. Inflorescences cymose, usually with more than 2 flowers; petioles short puberulent ..... *P. hookeriana*

                    27. Inflorescences 1- to 2-flowered; petioles with some long villous hairs, not short puberulent ..... *P. uniflora*

***Potentilla anserina* L.** (*P. pacifica* Howell = ssp. *pacifica*)
Silverweed
Habitat/Range: Margins of streams and ponds, mudflats, salt marshes and sand dunes; common in the lowland to montane zones, infrequent northward; circumboreal, N to AK, E to NF and S to CA, NM, IA and NY; Eurasia.
Notes: Two subspecies occur in BC.
1. Petioles and stolons densely to sparsely silky, with spreading hairs; mature achenes with 1 to several longitudinal wrinkles; plants from east of the Coast-Cascade Mountains ..... ssp. *anserina*
1. Petioles and stolons sparsely appressed hairy to glabrous; mature achenes only slightly if at all wrinkled; plants of the coast ..... ssp. *pacifica* (Howell) Rousi

***Potentilla argentea* L.**
Silvery cinquefoil
Habitat/Range: Dry, open ground, and waste places in the lowland, steppe vegetation and lower montane zones; locally frequent in S BC, especially east of the Coast-Cascade Mountains; introduced from Europe.

***Potentilla arguta* Pursh ssp. *convallaria* (Rydb.) Keck**
White or tall cinquefoil
Habitat/Range: Meadows and rocky slopes in the montane zone; common throughout BC, except along the coast; N to AK, E to PQ and S to OR, AZ, NM, OK and NJ.
Notes: The subspecies *arguta* with brown pubescence on the stems, is found east of the Rocky Mountains and may be expected in NE BC.

***Potentilla biennis* Greene**
Biennial cinquefoil
Habitat/Range: Moist meadows and waste places in the steppe vegetation and montane zones; infrequent in C BC; E to SK and S to CO, AZ, CA and MX.

***Potentilla biflora* Willd. ex Schlecht.**
Two-flowered cinquefoil
Habitat/Range: Rocky sites in the alpine zone; rare in N BC; amphiberingian, N to AK and NT; Asia.

***Potentilla bipinnatifida* Dougl. ex Hook.** (*P. pensylvanica* L. var. *bipinnatifida* [Dougl. ex Hook.] T.& G.)
Bipinnate cinquefoil
Habitat/Range: Moist areas, alkali flats and edges of lakes; infrequent in the steppe vegetation and montane zones; N to AK, YT and NT, E to NF and S to CA, NM, IN and NH.
Notes: Two varieties occur in BC.
1. Leaves silvery-white beneath ..... var. *bipinnatifida*
1. Leaves green beneath ..... var. *glabrata* (Hook.) Kohli & Packer

***Potentilla diversifolia* Lehm.**
Diverse-leaved or blue-leaved cinquefoil
Habitat/Range: Mesic meadows and rock outcrops in the montane to alpine zones; common throughout BC, except rare on the coast; N to S AK and YT; E to SK and S to UT, NM and CA.
Notes: Two varieties occur in BC.
1. Leaves primarily digitate; leaflets deeply toothed; the common variety ..... var. *diversifolia*
1. Leaves more or less pinnate; leaflets dissected to base; plants of SE BC, rare ..... var. *perdissecta* (Rydb.) C.L. Hitchc.

***Potentilla drummondii* Lehm.**

Drummond's cinquefoil

Habitat/Range: Open slopes and wet meadows in the montane to alpine zones; infrequent throughout BC south of 55°N; E to W AB and S to N CA.

***Potentilla elegans* Cham. & Schlecht.**

Elegant cinquefoil

Habitat/Range: Rocky slopes and crevices in the alpine zone; rare in N BC; amphiberingian, N to AK and NT; E Asia.

***Potentilla flabellifolia* Hook.**

Fan-leaved cinquefoil

Habitat/Range: Moist meadows and scree slopes in the montane to alpine zones; locally frequent in the Coast-Cascade Mountains south of 51°N; E to SW AB and S to MT, ID and CA.

***Potentilla fruticosa* L. ssp. *floribunda* (Pursh) Elkington**

Shrubby cinquefoil

Habitat/Range: Meadows, bogs and tundra in the montane to alpine zones; common throughout BC, except rare on the coast; circumboreal, N to AK and NT, E to NF and S to NJ, CO, NM and CA; Eurasia.

***Potentilla glandulosa* Lindl.**

Sticky cinquefoil

Habitat/Range: Open forests and meadows in the steppe vegetation and montane zones; common in S BC north to approximately 53°N, except rare on the coast; E to SW AB and S to MT, CO, CA and MX.

Notes: Two sympatric varieties occur in BC.

1. Petals shorter than or as long as sepals, often narrowly obovate to oblanceolate; stems and leaves usually with all hairs glandular ..... var. *glandulosa*
1. Petals longer than sepals, ovate to broadly obovate; stems and leaves often with many nonglandular hairs ..... var. *pseudorupestris* (Rydb.) Breitung

***Potentilla gracilis* Dougl.**

Graceful cinquefoil

Habitat/Range: Meadows, open forests and grasslands in the lowland to montane zones; common in S BC except rare on coast and N of 55°N; N to AK, E to SK and S to CA and MX.

Notes: Five varieties occur in BC.

1. Leaflets dissected at least ⅔ of the way to the midvein, the segments usually linear and greyish or whitish-hairy beneath ..... var. *flabelliformis* (Lehm.) Nutt. in T.& G.
1. Leaflets dissected no more than ⅔ of the way to the midvein, the segments usually lanceolate and often greenish beneath.
    2. Leaflets greyish beneath, finely, evenly and deeply serrate ... var. *pulcherrima* (Lehm.) Fern.
    2. Leaflets either greenish beneath or more coarsely and/or sharply serrate.
        3. Stems and petioles hirsute; the plants usually hoary, the hairs spreading ..... var. *permollis* (Rydb.) C.L. Hitchc.
        3. Stems and petioles strigose to appressed-silky, the hairs slightly if at all spreading.
            4. Lower surface of leaves white-woolly, much lighter than the upper surface ..... var. *gracilis*
            4. Lower surface of the leaves variously pubescent but rarely woolly, usually greenish, not much lighter than the upper surface ..... var. *glabrata* (Lehm.) C.L. Hitchc.

***Potentilla hippiana* Lehm.**
Woolly cinquefoil
Habitat/Range: Dry, open forests and grasslands in the steppe vegetation and montane zones; infrequent in BC east of the Coast-Cascade Mountains; E to SK and S to NM and AZ.

***Potentilla hookeriana* Lehm.**
Hooker's cinquefoil
Habitat/Range: Rocky and gravelly places in the montane and alpine zones; infrequent in BC east of the Coast-Cascade Mountains; amphiberingian, N to AK and E to SK; Siberia.

***Potentilla hyparctica* Malte**
Arctic cinquefoil
Habitat/Range: Meadows and scree slopes in the alpine zone; frequent in N BC, rare S to approximately 50°N; circumpolar, N to AK and E to NF and PQ; Greenland, N Eurasia.

***Potentilla nivea* L.**
Snow cinquefoil
Habitat/Range: Open slopes in the montane and alpine zones; infrequent throughout BC east of the Coast-Cascade Mountains; circumboreal, N to AK, E to PQ and S to NV and CO; Greenland, Eurasia.

***Potentilla norvegica* L.**
Norwegian or rough cinquefoil
Habitat/Range: Moist ground, often in waste places in the lowland to montane zones; common throughout BC, except rare north of 55°N (probably introduced along the coast); circumboreal, N to AK, E to NF and S to NC, TX and CA; Greenland, Eurasia.

***Potentilla ovina* Macoun**
Sheep cinquefoil
Habitat/Range: Moist open areas in the montane zone; rare in extreme SE BC; E to SK and S to CO, NM and CA.

***Potentilla palustris* (L.) Scop.**
Marsh cinquefoil
Habitat/Range: Marshes and bogs in the lowland to montane zones; common throughout BC; circumboreal, N to AK, E to NF and S to NJ, WY and N CA; Greenland, Eurasia.

***Potentilla paradoxa* Nutt. ex T.& G.**
Bushy cinquefoil
Habitat/Range: Moist meadows and streambanks in the steppe vegetation zone; rare in SC BC, known only from Spences Bridge and Osoyoos; amphiberingian, E to S ON, S to NY, KS, NM, MX and WA; E Asia.

***Potentilla pensylvanica* L.**
Pennsylvanian or prairie cinquefoil
Habitat/Range: Dry, rocky slopes in the steppe vegetation and montane zones; common in C and E BC, rarer northward; N to AK, E to NF and S to NV and MN; Greenland.

***Potentilla quinquefolia* (Rydb.) Rydb.**
Five-leaved cinquefoil
Habitat/Range: Graveily slopes in the montane zone; rare in BC east of the Coast-Cascade Mountains; N to YT, E to MB and S to CO, UT and OR.

***Potentilla recta* L.**
Sulphur cinquefoil
Habitat/Range: Waste places in the lowland to steppe vegetation zones; common in S BC, especially east of the Coast-Cascade Mountains; introduced from Eurasia.

***Potentilla rivalis* Nutt. in T.& G.**
Brook cinquefoil
Habitat/Range: Moist meadows in the lowland to montane zones; infrequent in S BC east of the Coast-Cascade Mountains; E to SK and S to MN, MO, NM and CA.

***Potentilla uniflora* Ledeb.** (*P. ledebouriana* Porsild, *P. vahliana* Lehm.)
One-flowered cinquefoil
Habitat/Range: Rock crevices and rocky slopes in the alpine zone; frequent throughout BC, except absent from the coast; amphiberingian, N to AK and S to CO; E Asia.

***Potentilla villosa* Pall. ex Pursh**
Villous cinquefoil
Habitat/Range: Coastal bluffs, beaches, meadows and rocky places in all vegetation zones; common throughout BC, especially along the coast; amphiberingian, N to AK, E to AB and S to WA; E Asia.

PRUNUS

1. Flowers in elongated racemes.
   2. Leaves thick and waxy, evergreen ..... *P. laurocerasus*
   2. Leaves thinner, deciduous ..... *P. virginiana*
1. Flowers in umbels or corymbs.
   3. Flowers umbellate or borne singly at tips of previous season's growth; flowers greater than 15 mm wide; drupes greater than 10 mm wide.
      4. Plants spiny-twigged; flowers usually borne singly; fruiting pedicels less than 1 cm long ..... *P. spinosa*
      4. Plants not spiny-twigged; flowers usually umbellate; fruiting pedicels much greater than 1 cm long ..... *P. avium*
   3. Flowers corymbose on common axis of current season's growth; flowers 10-15 mm wide; drupes 6-10 mm wide.
      5. Corymbs leafy bracted at base ..... *P. mahaleb*
      5. Corymbs not leafy bracted at base.
         6. Leaves acuminate, irregularly crenate-serrate; petioles usually with two glands at top; fruits red, 4-7 mm long ..... *P. pensylvanica*
         6. Leaves obtuse to acute, uniformly crenulate to serrate; petioles usually lacking glands; fruits red to black, 8-12 mm long ..... *P. emarginata*

***Prunus avium* (L.) L.**
Sweet cherry
Habitat/Range: Edges of forests and fields in the lowland zone; infrequent in S BC; introduced from Eurasia.

***Prunus emarginata* (Dougl.) Walp.**

Bitter cherry

Habitat/Range: Forests, open fields and streambanks in the lowland, steppe vegetation and montane zones; common in S BC south of 55°N; S to CA and E to MT, WY and AZ.

Notes: The more typical tree-like plants from coastal areas have been given the varietal name *mollis* (Dougl.) Brew.

***Prunus laurocerasus* L.**

Cherry-laurel

Habitat/Range: Open forests and disturbed sites in the lowland zone; rare in SW BC; introduced from Eurasia.

***Prunus mahaleb* L.**

Mahaleb cherry

Habitat/Range: Fields and waste places in the steppe vegetation zone; rare in SC BC; introduced from Europe.

***Prunus pensylvanica* L.f.**

Pin or bird cherry

Habitat/Range: Dry, open forests and waste places in the steppe vegetation and montane zones; common in BC south of 56°N, east of the Coast-Cascade Mountains; E to NF and S to VA and CO.

***Prunus spinosa* L.**

Sloe or blackthorn

Habitat/Range: Waste places in the lowland zone; rare in SW BC; introduced from Europe.

***Prunus virginiana* L.**

Choke cherry

Habitat/Range: Edges of forests, along streams and in waste places in the lowland to montane zones; common in S BC, especially east of the Coast-Casade Mountains, infrequent northward; E to NF and S to NC, TX and CA.

Notes: Two subspecies occur in BC.

1. Leaves glabrous beneath or pubescent in axils of veins; drupes bluish-purple to black; plants from east of the Coast-Cascade Mountains ..... ssp. *melanocarpa* (Nels.) Taylor & MacBryde
1. Leaves pubescent beneath; drupe black; plants from west of the Coast-Cascade Mountains .... ssp. *demissa* Taylor & MacBryde

PURSHIA

***Purshia tridentata* (Pursh) DC.**

Antelope-brush or bitter-brush

Habitat/Range: Dry hills and open forests of the steppe vegetation zone; common in S BC, east of the Coast-Cascade Mountains; S to MT, WY, CO, NM and CA.

PYRUS

***Pyrus communis* L.**

Common pear

Habitat/Range: Waste places, fields and open forests of the lowland zone; rare in SW BC; introduced from Europe.

ROSA

1. Prickles strongly curved, stout; sepals often with conspicuous lateral lobes and usually reflexed after anthesis.
   2. Lower surface of leaflets stipitate-glandular ..... *R. eglanteria*
   2. Lower surface of leaves not stipitate-glandular (sometimes few glands along rachis or midrib of leaflets) ..... *R. canina*
1. Prickles not curved, often slender; sepals usually without lateral lobes, usually ascending or erect after anthesis.
   3. Sepals deciduous in fruit, 12 mm long or less; petals 15 mm long or less ..... *R. gymnocarpa*
   3. Sepals persistent in fruit, greater than 12 mm long; petals greater than 15 mm long.
      4. Stems with well-defined infrastipular prickles (pair of prickles at or just below each node) or nearly unarmed.
         5. Sepals usually glandular-bristly; leaves finely toothed ..... *R. pisocarpa*
         5. Sepals usually not glandular-bristly; leaves coarsely toothed.
            6. Flowers small and clustered; sepals mostly 1-2 cm long and 2-3.5 mm wide at base; petals 1.2-2.5 cm long ..... *R. woodsii*
            6. Flowers large and often solitary; sepals mostly 1.5-4 cm long and 3-6 mm wide at base; petals 2.5-4 cm long ..... *R. nutkana*
      4. Stems more or less bristly with slender prickles; infrastipular prickles, if any, like the others.
         7. Flowers mostly solitary, usually on lateral branches of current season; leaflets usually 5-7 (9); petals more than 2.5 mm long ..... *R. acicularis*
         7. Flowers commonly clustered at ends of main shoots of current season as well as on lateral shoots; leaflets (7) 9-11; petals less than 2.5 cm long ..... *R. arkansana*

***Rosa acicularis* Lindl. ssp. *sayi* (Schwein.) W.H. Lewis**

Prickly rose

Habitat/Range: Open woods, hills and edges of streams in the lowland to montane zones; common throughout BC, east of the Coast-Cascade Mountains; circumboreal, N to AK, E to PQ and S to NY, MN, CO and NM; Eurasia.

***Rosa arkansana* T.C. Porter in Porter & Coult.**

Arkansas rose

Habitat/Range: Open hills and edges of lakes and streams in the steppe vegetation zone; rare in NE BC; E to MB and S to MT, NM, TX and MO.

***Rosa canina* L.**

Dog rose

Habitat/Range: Roadsides and open fields in the lowland zone; rare in SW BC; introduced from Eurasia.

***Rosa eglanteria* L.**

Sweetbrier

Habitat/Range: Roadsides and waste places in the lowland and steppe vegetation zones; infrequent in SW BC; introduced from Eurasia.

***Rosa gymnocarpa* Nutt. in T.& G.**

Baldhip rose

Habitat/Range: Open woods in the lowland to montane zones; common in S BC south of approximately 53°N; S to CA, MT and ID.

***Rosa nutkana* Presl**

Nootka rose

Habitat/Range: Open woods and thickets in the lowland to montane zones; common throughout BC south of 55°N, infrequent northward, absent in NE BC; N to AK and S to CA, CO and UT.

Notes: Two varieties occur in BC.

1. Leaflets doubly-serrate, the teeth gland-tipped; infrastipular prickles becoming much enlarged and flattened toward base; plants mostly from west of Coast-Cascade Mountains ..... var. *nutkana*
1. Leaflets singly-serrate, teeth not gland-tipped; prickles rarely enlarged and flattened; plants mostly from east of Coast-Cascade Mountains ..... var. *hispida* Fern.

***Rosa pisocarpa* A. Gray**

Clustered wild rose, or peafruit rose

Habitat/Range: Thickets and swampy places in the lowland to montane zones; frequent in SW BC; S to N CA.

***Rosa woodsii* Lindl. ssp. *ultramontana* (S. Wats.) Taylor & MacBryde**

Prairie or Wood's rose

Habitat/Range: Open, dry hillsides and forests to wet places in the steppe vegetation and montane zones; frequent in S and C BC east of the Coast-Cascade Mountains, less frequent northward; E to SK and S to WI, MO, TX and CA.

RUBUS

1. Plants unarmed.
   2. Stems erect, woody.
      3. Petals red; leaves 3-foliolate ..... *R. spectabilis*
      3. Petals white; leaves palmately lobed ..... *R. parviflorus*
   2. Stems trailing, not woody.
      4. Plants dioecious; leaves broadly cordate-reniform, shallowly lobed ..... *R. chamaemorus*
      4. Plants with perfect flowers; leaves mostly compound.
         5. Petals more or less reddish, 10-16 mm long; plants not stoloniferous ..... *R. arcticus*
         5. Petals white, mostly less than 8 mm long; plants usually stoloniferous.
            6. Leaflets 5 (sometimes 3, with lower pair divided nearly to base) ..... *R. pedatus*
            6. Leaflets 3 (or simple and deeply 3-lobed).
               7. Leaves usually simple and deeply lobed; ovaries densely pubescent; filaments slender ... . *R. lasiococcus*
               7. Leaves usually 3-foliolate; ovaries glabrous; filaments flattened ..... *R. pubescens*
1. Plants armed with bristles or broad-based prickles.

8. Leaves (at least in part) simple and cordate; stipules ovate-lanceolate, slenderly acuminate; stems trailing; petals pink or purple ..... *R. nivalis*

8. Leaves nearly always compound; stipules various, but usually slender or adnate to petioles; stems various; petals mostly white.

9. Receptacle fleshy, forming part of the ripe fruit (blackberries); stems mostly trailing or clambering; plants strongly armed, at least some of the prickles flattened or hooked; petals white or pale pink.

10. Plants usually completely dioecious, pistillate flowers with distinctly rudimentary stamens, the staminate flowers with small nonfunctional carpels; stems weak, trailing; leaves trifoliolate, or sometimes simple ..... *R. ursinus*

10. Plants with perfect flowers; stems thick, clambering to erect; leaves various.

11. Leaflets laciniate to dissected ..... *R. laciniatus*

11. Leaflets merely toothed.

12. Petioles and pedicels with abundant glandular hairs; leaflets of vigorous canes usually long acuminate ..... *R. allegheniensis*

12. Petioles and pedicels lacking glandular hairs; leaflets of vigorous canes usually rounded or abruptly short acuminate ..... *R. discolor*

9. Receptacle dry or only slightly fleshy, not forming part of the ripe fruit (raspberries), or if partially succulent then petals deep pink; stems mostly erect or arching, not trailing; prickles not usually flattened or hooked; petals white, pink or red.

13. Petals pink to red, usually over 1.5 cm long; fruits salmon-coloured to red; stems erect, not vine-like, often armed only near the base; leaves not prickly ..... *R. spectabilis*

13. Petals white, usually less than 1.5 cm long; fruits often black; leaves frequently prickly on the underside.

14. Main prickles flattened and often retrorsely hooked; fruits dark reddish-blue to black; flowers several in umbellate to flat-topped clusters ..... *R. leucodermis*

14. Main prickles usually neither flattened nor retrorsely hooked; fruits red, occasionally yellowish; flowers few in open, but not flat-topped racemes or thyrses ..... *R. idaeus*

***Rubus allegheniensis* T.C. Porter**

Allegheny blackberry

Habitat/Range: Waste places in the lowland zone; rare in SW BC; introduced from E North America.

***Rubus arcticus* L.** (*R. acaulis* Michx. = ssp. *acaulis*; *R. stellatus* Sm. = ssp. *stellatus*)

Nagoonberry, or dwarf nagoonberry

Habitat/Range: Cold bogs and meadows in the montane to alpine zones; frequent throughout BC, mostly in and E of the Coast-Cascade Mountains; circumpolar, N to AK, E to NF and S to MT, CO and MN; Eurasia.

Notes: Two subspecies occur in BC.

1. Leaves compound; hypanthia lacking glands; frequent throughout BC ..... ssp. *acaulis* (Michx.) Focke

1. Leaves 3-lobed or nearly entire; hypanthia with yellow glands; rare in NW BC ..... ssp. *stellatus* (Sm.) Boivin

***Rubus chamaemorus* L.**
Cloudberry
Habitat/Range: Bogs and peaty soil in forests in the montane and alpine zones; frequent in N BC, less frequent elsewhere, absent in SC and SE BC; circumboreal, N to AK, YT and NT, E to NF and S to NY, and ME; Eurasia.

***Rubus discolor* Weihe & Nees** (*R. procerus* Muell.)
Himalayan blackberry
Habitat/Range: Waste places, roadsides and fencerows in the lowland zone; common in SW BC; introduced from Asia.

***Rubus idaeus* L. ssp. *melanolasius* (Dieck) Focke**
Red raspberry, or American red raspberry
Habitat/Range: Fields and open forests in the lowland to montane zones; common throughout BC mostly in and E of the Coast-Cascade Mountains; E to NF and S to CA, N MX and NC.

***Rubus laciniatus* Willd.**
Evergreen blackberry, or cutleaf evergreen blackberry
Habitat/Range: Waste places and roadsides in the lowland zone; common in SW BC; introduced from Europe.

***Rubus lasiococcus* A. Gray**
Dwarf bramble
Habitat/Range: Thickets and open forests in the montane zone; rare in SW BC; S to N CA.

***Rubus leucodermis* Dougl. ex T.& G.**
Black raspberry
Habitat/Range: Open forests of the lowland to montane zones; common in S BC; S to MT, WY, UT, NV and CA.

***Rubus nivalis* Dougl. ex Hook.**
Snow bramble or dewberry
Habitat/Range: Moist forests in the montane zone; rare in S BC; S to OR and ID.

***Rubus parviflorus* Nutt.**
Thimbleberry
Habitat/Range: Moist to mesic open forests, roadsides and streambanks in the lowland to montane zones; common throughout S BC, south of ca. 56°N; N to S AK, E to ON and S to MI, MN, N MX, NM and CO.

***Rubus pedatus* J.E. Sm.**
Five-leaved bramble, or creeping raspberry
Habitat/Range: Moist open forests of the lowland to montane zones; common throughout BC, especially south; N to AK, E to AB and S to MT, ID and OR.

***Rubus pubescens* Raf.**
Trailing raspberry, or dwarf red blackberry
Habitat/Range: Thickets, moist forests, swamps and bogs in the montane zone; common throughout BC east of the Coast-Cascade Mountains; N to NT, E to NF and S to WA, CO, SD, IN, WV and NJ.

***Rubus spectabilis* Pursh**
Salmonberry
Habitat/Range: Moist forests, swamps and streambanks in the lowland zone; common in coastal BC; amphiberingian, N to AK and S to N CA; E Asia.

***Rubus ursinus* Cham. & Schlecht. ssp. *macropetalus* (Dougl. ex Hook.) Taylor & MacBryde** (*R. ursinus* Cham. & Schlecht. var. *macropetalus* [Dougl. ex Hook.] R. Br.)
Trailing or Pacific trailing blackberry
Habitat/Range: Open forests, thickets and waste places in the lowland to lower montane zones; common in SW BC; S to ID and N CA.

SANGUISORBA

1. Plants annuals or biennials; leaflets pinnatifid; stems very leafy; stamens usually 2 ..... *S. occidentalis*
1. Plants perennials; leaflets coarsely toothed; stems sparingly leafy; stamens 4 to many.
   2. Stamens numerous; leaflets usually less than 2 cm long; flowers male or female; hypanthia of fruit strongly reticulate between the wings ..... *S. minor*
   2. Stamens 4; leaflets usually more than 2 cm long; flowers perfect; hypanthia of fruit smooth or merely wrinkled between the wings.
      3. Stamens included, or slightly longer than the sepals; filaments terete, not clavate .... *S. officinalis*
      3. Stamens 2-3 times as long as the sepals; filaments flattened, dilated toward top.
         4. Sepals white or greenish, sometimes pinkish at the apex; inflorescences at first tapering, but cylindrical in full anthesis ..... *S. canadensis*
         4. Sepals purple or brownish, never pale; inflorescences obtuse, oblong or globose, not tapering upwards ..... *S. menziesii*

***Sanguisorba canadensis* L. ssp. *latifolia* (Hook.) Calder & Taylor** (*S. sitchensis* C.A. Mey., *S. stipulata* Raf.)
Sitka or Canada burnet
Habitat/Range: Bogs, swamps and streambanks in the montane zone; common throughout BC except absent in NE, SC and SE BC; N to AK and S to OR and ID.

***Sanguisorba menziesii* Rydb.**
Menzies' burnet
Habitat/Range: Bogs and marshes in the lowland and montane zones; rare along the coast; N to AK and S to WA.
Notes: Possibly a hybrid between *S. canadensis* ssp. *latifolia* and *S. officinalis*.

Sanguisorba minor Scop.
Salad burnet
Habitat/Range: Roadsides and waste places in the lowland zone; rare in SW BC; introduced from Eurasia.

***Sanguisorba occidentalis* Nutt.**
Western burnet
Habitat/Range: Dry fields and roadsides in the lowland and steppe vegetation zones; rare in S BC; S to W MT and S CA.

***Sanguisorba officinalis* L. ssp. *microcephala* (Presl) Calder & Taylor**

Great burnet

Habitat/Range: Bogs and swamps in the lowland to montane zones; frequent along the coast; N to AK and YK and S to S CA.

SIBBALDIA

***Sibbaldia procumbens* L.**

Sibbaldia

Habitat/Range: Gravelly meadows and rock outcrops in the montane to alpine zones; infrequent throughout all but NE BC; circumboreal, N to AK, YT and NT, E to PQ and S to NH, CO and CA; Eurasia.

SORBUS

1. Plants becoming trees over 5 m tall; leaflets usually more than 13; winter buds densely grey-villous; styles 2-3 ..... *S. aucuparia*

1. Plants shrubby, usually less than 5 m tall; leaflets rarely as many as 13; winter buds not grey-villous; styles 3-5.

   2. Winter buds reddish-brown pubescent; calyces glabrous on outside; leaflets obtuse or rounded at tip, serrate for not more than 3/4 of their length; styles 4-5; fruits red, glaucous ..... *S. sitchensis*

   2. Winter buds glutinous, sparsely white hairy; calyces hairy on outside; leaflets acute or acuminate, serrate for most of their length; styles 3-4; fruits orange, not glaucous ..... *S. scopulina*

***Sorbus aucuparia* L.**

European mountain-ash

Habitat/Range: Open woods, fields and roadsides in the lowland zone; frequent in SW BC; introduced from Eurasia.

***Sorbus scopulina* Greene**

Western mountain-ash

Habitat/Range: Meadows, open forests and forest edges in the montane to alpine zones; frequent throughout BC, mostly E of the Coast-Cascade Mountains; N to AK, E to AB and S to ND, WY, NM and N CA.

Notes: Two varieties occur in BC.

1. Leaflets often 13; stipules usually shed before end of anthesis; plants from E of Coast-Cascade Mountains ..... var. *scopulina*
1. Leaflets rarely more than 11; stipules persistent until after anthesis; plants from W slope of Cascade Mountains ..... var. *cascadensis* (G.N. Jones) C.L. Hitchc.

***Sorbus sitchensis* Roemer**

Sitka mountain-ash

Habitat/Range: Meadows, open forests and forest edges in the montane to alpine zones; common throughout BC (except NE BC), especially southward; N to AK and YT, E to AB and S to ID, MT and N CA.

Notes: Two sympatric varieties occur in BC.

1. Leaflets entire or toothed mostly above midlength ..... var. *grayi* (Wenzig) C.L. Hitchc.
1. Leaflets toothed one-half to three-quarters their length ..... var. *sitchensis*

SPIRAEA

1. Inflorescences flat, corymbose.
   2. Petals pink ..... *S. densiflora*
   2. Petals white.
      3. Young growth and hypanthium pubescent; sepals reflexed ..... *S. stevenii*
      3. Young growth and hypanthium glabrous; sepals not reflexed ..... *S. betulifolia*
1. Inflorescences paniculate, rounded or more or less elongated.
   4. Inflorescences obconic or rounded, about twice as long as broad; petals white or very pale pink ..... *S. pyramidata*
   4. Inflorescences much elongated, several times longer than broad; petals dark pink ..... *S. douglasii*

***Spiraea betulifolia* Pall. var. *lucida* (Dougl.) C.L. Hitchc.**
Birch-leaved spirea
Habitat/Range: Streambanks, open forests and hillsides in the steppe vegetation and montane zones; common throughout BC, largely east of the Coast-Cascade Mountains and S of 56°N; S to CA, MT and ID.

Spiraea densiflora* Nutt. ex T.& G. var. *densiflora
Subalpine spirea
Habitat/Range: Forest edges and meadows in the montane and subalpine zones; infrequent in S BC; amphiberingian, E to SK and S to SD, WY and OR; Asia.

***Spiraea douglasii* Hook.**
Hardhack, or Douglas' spirea (ssp. *douglasii*); hardhack, pink spirea or Menzies' spirea (ssp. *menziesii*)
Habitat/Range: Bogs, swamps and moist forests and thickets in the lowland to montane zones; common throughout BC, S of approximately 56°N; S to CA and ID.
Notes: Two subspecies occur in BC.
1. Leaves greyish-tomentose beneath; plants of the coast ..... ssp. *douglasii*
1. Leaves glabrous to pubescent, but not greyish-tomentose beneath; plants from throughout BC ..... ssp. *menziesii* (Hook.) Calder & Taylor

***Spiraea pyramidata* Greene**
Pyramid spirea
Habitat/Range: Open forests, fields and dry canyons in the steppe vegetation and montane zones; infrequent throughout BC east of the Coast-Cascade Mountains and S of 56°N; S to ID and N OR.

***Spiraea stevenii* (Schneid.) Rydb.** (*S. beauverdiana* Schneid.)
Steven's spirea
Habitat/Range: Streambanks and meadows in the montane to alpine zones; rare in NW BC; N to AK, YT and NT.

RUBIACEAE[13]

1. Calyx teeth evident; flowers in small heads with a basal involucre of leaflike bracts ..... *Sherardia*
1. Calyx teeth obsolete; flowers in open inflorescences ..... *Galium*

GALIUM[14]

1. Corollas funnel-shaped, the tubes not much, if at all, shorter than the lobes ..... *G. odoratum*
1. Corollas rotate, the tubes much shorter than the lobes.
   2. Plants annuals from short taproots.
      3. Leaves 2-4 in a whorl ..... *G. bifolium*
      3. Leaves 8 (or sometimes 6) in a whorl ..... *G. aparine*
   2. Plants perennials from creeping rhizomes.
      4. Fruits with hooked hairs.
         5. Leaves 4 in a whorl, 3-nerved; stems glabrous ..... *G. kamtschaticum*
         5. Leaves 6 (or sometimes 5) in a whorl, 1-nerved; stems usually scabrous on the angles.
            6. Fruit bristles short, less than 0.4 mm long ..... *G. mexicanum*
            6. Fruit bristles longer, 0.5 - 1.0 mm long ..... *G. triflorum*
      4. Fruits without hooked hairs.
         7. Flowers numerous in terminal, compound and much-branched, showy inflorescences.
            8. Leaves 4 in a whorl, 3-nerved, not cuspidate; plants common throughout BC, native ..... *G. boreale*
            8. Leaves 6-8 (or sometimes 12) in a whorl, 1-nerved, cuspidate; plants rare, introduced in SW BC.
               9. Flowers white; stems glabrous in the inflorescence; leaves linear-lanceolate, flat ..... *G. mollugo*
               9. Flowers bright yellow; stems usually pubescent, at least in the inflorescence; leaves linear-acicular ..... *G. verum*
         7. Flowers solitary or few in small, inconspicuous inflorescences.
            10. Corollas white; stems erect or ascending; plants rare in NE BC ..... *G. labradoricum*
            10. Corollas greenish-white; stems reclining; plants common throughout BC ..... *G. trifidum*

***Galium aparine* L.**

Cleavers

Habitat/Range: Wet to mesic fields, waste places and forests in the lowland, steppe vegetation and montane zones; common on Vancouver Island, less frequent on Queen Charlotte Islands, SW BC and SC BC; circumpolar, N to S AK, E to NF and S to FL, TX and CA; Eurasia.

Notes: This species is often difficult to separate from *G. spurium* L. which has yet to be collected in BC but occurs from AB to PQ and NS. The latter has greenish-yellow flowers 1.0-1.5 mm in diameter while *G. aparine* has white flowers about 2.0 mm in diameter.

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[13] Key adapted from Hitchcock and Cronquist (1973).

[14] Ibid.

***Galium bifolium* S. Wats.**
Thin-leaved bedstraw
Habitat/Range: Moist to dry sites in the steppe vegetation and montane zones; infrequent throughout S BC; E to SW AB and S to CO and CA.

***Galium boreale* L.**
Northern bedstraw
Habitat/Range: Moist to dry meadows, prairies and shorelines from the lowland to alpine zones; common throughout BC except absent on the Queen Charlotte Islands and the north coast; circumpolar, N to AK, YT and NT, E to PQ, NS and NB and S to DE, OH, MO, TX and CA; Eurasia.

***Galium kamtschaticum* Steller ex Schult. & Schult.**
Boreal bedstraw, or northern wild-licorice
Habitat/Range: Moist sites in the lowland and montane zones; infrequent in coastal BC, infrequent in C BC; amphiberingian, N to AK, E to NF and S to NY and ME; E Asia.

***Galium labradoricum* (Wieg.) Wieg.**
Northern bog bedstraw
Habitat/Range: Bogs, wet meadows and moist forests in the montane zone; rare in NE BC; E to NF and S to NJ, OH and MN.

***Galium mexicanum* Kunth in H.B.K. ssp. *asperulum* (A. Gray) Dempster** (*G. asperrimum* A. Gray var. *asperula* A. Gray)
Rough bedstraw
Habitat/Range: Forest margins in the lowland and montane zones; rare in SW BC, known only from Mission; S to MT, NM, CA and MX.

***Galium mollugo* L.**
White bedstraw
Habitat/Range: Fields, roadsides and disturbed sites; rare in extreme SW BC; introduced from Eurasia.

***Galium odoratum* (L.) Scop.** (*Asperula odorata* L.)
Sweet woodruff
Habitat/Range: Disturbed sites; rare garden escape on S Vancouver Island; introduced from Eurasia.

***Galium triflidum* L.** (*G. columbianum* Rydb., *G. cymosum* Wieg. and G. *trifidum* ssp. *pacificum* [Wieg.] Piper = ssp. *columbianum*; *G. subbiflorum* [Wieg.] Rydb. = ssp. *subbiflorum*).
Small bedstraw
Habitat/Range: Wet shorelines, swamps, bogs and meadows from the lowland to subalpine zones; ssp. *columbianum* - common in coastal BC; ssp. *subbiflorum* - frequent in BC east of the Coast-Cascade Mountains; ssp. *trifidum* - rare in SW BC; ssp. *columbianum* - amphiberingian, N to AK and S to ID, NV and CA, E Asia; ssp. *subbiflorum* - N to YT and W NT, E to AB and S to CO, NM and NV; ssp. *trifidum* - circumpolar, N to AK, YT and NT, E to NF and S to ME, MI, IL, SD, CO and OR, Eurasia.
Notes: Three subspecies occur in BC.[15]

1. Corollas 2.0-2.5 mm in diameter ..... ssp. *columbianum* (Rydb.) Hult.
1. Corollas 1.2-1.8 mm in diameter.
   2. Axillary or terminal partial inflorescences 1- to 2-flowered; fruiting pedicels smooth to slightly retrorsely scabrous ..... ssp. *subbiflorum* (Wieg.) Puff
   2. Terminal partial inflorescences 3-flowered; fruiting pedicels densely retrorsely scabrous ..... ssp. *trifidum*

[15] Key adapted from Puff (1976).

***Galium triflorum* Michx.**
Sweet-scented bedstraw
Habitat/Range: Moist sites in the lowland, steppe vegetation and montane zones; common throughout BC; circumpolar, N to AK, YT and SW NT, E to NF and S to FL, CA and MX; Eurasia.

***Galium verum* L.**
Yellow bedstraw
Habitat/Range: Fields and roadsides; rare on Vancouver Island and the Gulf Islands; introduced from Eurasia.

SHERARDIA

***Sherardia arvensis* L.**
Field madder
Habitat/Range: Fields and waste places; locally frequent on Vancouver Island and the Gulf Islands and lower mainland, rare on the Queen Charlotte Islands; introduced from Europe.

SALICACEAE[16]

1. Floral bracts fimbriate; flowers with an eglandular, cup-like disk; buds with 3-10 imbricate scales ..... *Populus*

1. Floral bracts entire, rarely erose; flowers with 1-2 slender or cup-like, glandular nectaries; buds with a single scale ..... *Salix*

POPULUS

1. Buds shiny but not resinous; petioles strongly flattened laterally; bark smooth; stamens 6-14; carpels 2 .. *P. tremuloides*

1. Buds resinous; petioles terete or slightly flattened laterally; bark rough; stamens 30-60; carpels 3-4.

   2. Leaves strongly resinous, distinctly paler beneath, base rounded to shallowly cordate, petioles terete; plants common throughout BC, native ..... *P. balsamifera*

   2. Leaves not strongly resinous, green on both sides, base truncate, petioles flattened laterally near blade; plants rare, introduced in SE BC ..... *P. deltoides*

***Populus balsamifera* L.** (*P. balsamifera* var. *subcordata* Hylander, and *P. balsamifera* var. *hastata* [Dode] Brayshaw are intermediate between the two subspecies, *P. trichocarpa* T.& G. = ssp. *trichocarpa)*
Balsam poplar (ssp. *balsamifera*), and black cottonwood (ssp. *trichocarpa*)
Habitat/Range: Moist uplands and floodplains in the montane zone; ssp. *balsamifera* - common in N and E BC; ssp. *trichocarpa* - common throughout BC except rare on Queen Charlotte Islands; ssp. *balsamifera* - N to AK, E to NF and S to OR, WY, WV; ssp. *trichocarpa* - N to S AK, E to SW AB and S to ND and CA.
Notes: Two subspecies occur in BC. The hybrids *P. angustifolia* James x *P. balsamifera* ssp. *trichocarpa* (*P.* x *brayshawii* Boivin) and *P. balsamifera* ssp. *trichocarpa* x *P. nigra* L. var. *italica* DuRoi are rare in BC.
1. Ovaries and capsules glabrous; leaves pale green and brownish beneath ..... ssp. *balsamifera*
1. Ovaries and young capsules pubescent; leaves whitish beneath ..... ssp. *trichocarpa* (T.& G.) Brayshaw

[16] Contributed by G.W. Argus.

Populus deltoides **Bartram**

Southern cottonwood (ssp. *deltoides*), and plains cottonwood (ssp. *monilifera*)

Habitat/Range: Fields and disturbed sites; rare in SE BC; introduced from E North America.

Notes: Two subspecies apparently occur in BC.

1. Winter buds glabrous; emerging leaves pilose; pedicels of flowers variable in length ..... ssp. *deltoides*

1. Winter buds pubescent; emerging leaves glabrous; pedicels of flowers uniform in length (less than 6 mm long) ..... ssp. *monilifera* (W. Aiton) Eckenwalder

Populus tremuloides **Michx.** (*P. tremuloides* var. *vancouveriana* [Trel.] Sarg., *P. tremuloides* var. *aurea* [Tidestr.] Daniels)

Trembling aspen

Habitat/Range: Moist draws, depressions and occasionally on floodplains in the lowland and montane zones; common throughout BC, except infrequent on SW coast and absent on the Queen Charlotte Islands; N to AK, E to NF and S VA and MX.

SALIX

1. Dwarf alpine shrubs.

   2. Leaves green beneath, lacking a waxy bloom ..... *S. polaris*

   2. Leaves glaucous beneath.

      3. Leaf apex rounded.

         4. Leaves reticulate-veiny beneath; styles 0.2-0.3 mm long; aments at ends of normal vegetative shoots ..... *S. reticulata*

         4. Leaves not conspicuously reticulate-veiny beneath; styles (0.4) 0.8-1.6 mm long; aments on lateral shoots ..... *S. stolonifera*

      3. Leaf apex acute.

         5. Leaf blades narrowly elliptic; capsules 3.5-5 mm long; plants forming rhizomatous mats ..... *S. cascadensis*

         5. Leaf blades broader; capsules 5.5-9 mm long; shrubs usually above the ground, not in mats ..... *S. arctica*

1. Trees or erect shrubs.

   6. Floral bracts deciduous after flowering, bracts tawny.

      7. Trees.

         8. Stipules lacking, except on vigorous shoots; budscale margins free and overlapping; branchlets and young leaves glabrous ..... *S. amygdaloides*

         8. Stipules present; budscale margins fused; branchlets usually pubescent; young leaves pubescent.

            9. Small trees or large shrubs 1-9 m tall; native; styles 0.4-0.8 mm long; stipes 0.8-1.4 mm long; floral nectaries shorter than stipes ..... *S. lucida*

            9. Tall trees 10-25 m tall; naturalized; styles approximately 0.2 mm long; stipes 0.2-0.8 mm long; floral nectaries equal to or longer than stipes ..... *S. alba*

      7. Shrubs.

10. Colonial shrubs, shoots arising from roots; leaves linear or narrowly elliptic to elliptic; margins denticulate, sometimes entire; aments often branched.

    11. Leaves linear (length/width 10-23), the sides parallel, lower surface green; styles less than 0.15 mm long ..... *S. exigua*

    11. Leaves narrowly elliptic to elliptic (length/width 2.5-8.5), the sides not parallel, lower surface pale or rarely glaucescent; styles 0.2-0.4 mm long.

        12. Pistils glabrous; stigmas short and blunt; leaves pubescent with spreading hairs ..... *S. melanopsis*

        12. Pistils pubescent; stigmas long and slender; leaves pubescent with appressed, silky hairs ..... *S. sessilifolia*

10. Non-colonial shrubs; leaves narrowly elliptic, narrowly to broadly ovate or narrowly obovate; margins serrate; aments unbranched.

    13. Leaf apices long-caudate; stipules foliaceous, ovate; branchlets pubescent or glabrous, brittle at base; flowering with the leaves ..... *S. lucida*

    13. Leaf apices acute or short-caudate; stipules absent, minute glandular lobes, or clusters of glands; branchlets glabrous, flexible at base; flowering long after the leaves ..... *S. serissima*

6. Floral bracts persistent after flowering, bracts tawny, brown or black.

    14. Colonial shrubs, shoots arising from roots; leaves narrowly obovate, leaf bases tapering to a petiole 0-3 mm long ..... *S. setchelliana*

    14. Non-colonial shrubs; leaves not as above.

        15. Leaves green beneath, lacking a waxy bloom, or surface obscured by dense indumentum.

            16. Leaf margins toothed.

                17. Leaves glabrous beneath.

                    18. Pistils pubescent; leaves coriaceous, rarely sparsely pubescent with ferruginous hairs ..... *S. maccalliana*

                    18. Pistils glabrous; leaves thin, lacking pubescence except sometimes on midrib.

                        19. Stipules 1-5 mm long, ovate, apex blunt; leaf apices broadly acute to rounded ..... *S. myrtillifolia*

                        19. Stipules 5-12 mm long, apex sharply acute; leaf apices abruptly short-acuminate ..... *S. boothii*

                17. Leaves pubescent beneath.

                    20. Leaves villous to villous-lanate beneath, glabrous above ..... *S. vestita*

                    20. Leaves pubescent on both surfaces.

                        21. Leaves villous; pistillate aments on leafy shoots ..... *S. commutata*

                        21. Leaves sparsely pubescent; pistillate aments sessile ..... *S. tweedyi*

            16. Leaf margins entire.

                22. Pistillate aments sessile; leaf margins revolute or flat.

23. Leaves densely white lanate beneath, bright green above, margins revolute; stipules linear, 4-20 mm long; stipes less than 0.4 mm long ..... *S. alaxensis*

23. Leaves sericeous or tomentose beneath, margins revolute or flat; stipules narrowly elliptic to ovate, 1.2-5 mm long; stipes 0.2-2 mm long.

24. Branchlets pruinose, glabrous, brittle at bases; buds not oily; leaf margins revolute; stipes 0.6-2 mm long ..... *S. drummondiana*

24. Branchlets not pruinose, coarsely villous, not brittle at bases; buds oily; leaf margins flat; stipes 0.2-0.6 mm long ..... *S. barrattiana*

22. Pistillate aments on leafy shoots; leaf margins revolute.

25. Leaves densely white-lanate beneath, floccose above, narrow (length/width 3.4-8), base acute; capsules 5-7 mm long; pistils densely tomentose ..... *S. candida*

25. Leaves sericeous beneath with short appressed hairs, bright green and glabrate above, broad (length/width 2.4-3), base cuneate; capsules 3.5-5.5 mm long; pistils sparsely sericeous ..... *S. sitchensis*

15. Leaves glaucous beneath.

26. Leaf margins toothed.

27. Leaves glabrous or glabrate beneath at maturity.

28. Pistils glabrous.

29. Stipules minute rudiments; unfolding leaves yellow-green, translucent ..... *S. pyrifolia*

29. Stipules foliaceous; unfolding leaves greenish or reddish, opaque.

30. Stipules persistent for several years, linear to ovate, the apex attenuate; leaf margins crenate; nectaries longer than or equal to stipes ..... *S. lanata*

30. Stipules not persistent, elliptic to broadly ovate, apex usually rounded; leaf margins serrate; nectaries shorter than stipes.

31. Pistillate aments sessile, lacking even leafy bracts at base ..... *S. pseudomonticola*

31. Pistillate aments on leafy shoots, sometimes subsessile, but with leafy bracts at base.

32. Stipes 1.8-4.2 mm long; stipules ovate, apex rounded; unfolding leaves mostly reddish, rarely green; branchlets mostly glabrous, sometimes with spreading hairs ..... *S. prolixa*

32. Stipes 0.3-1.5 mm long; stipules elliptic, apex acute or blunt; unfolding leaves green; branchlets pubescent.

33. Unfolding leaves pubescent on both sides, hairs white; branchlet hairs spreading; pistils usually greenish ..... *S. barclayi*

33. Unfolding leaves glabrous beneath, sparsely pubescent above, sometimes with ferruginous hairs; branchlet hairs appressed; pistils usually red-tinged ..... *S. farriae*

28. Pistils pubescent.

34. Pistillate aments on leafy shoots, flowering with the leaves .... *S. petiolaris*

34. Pistillate aments sessile, flowering before the leaves.

35. Leaves dull or satiny above, veins widely spaced and irregular; stipes 2-2.5 mm long; stigmas equal to or longer than styles ..... *S. discolor*

35. Leaves highly glossy above, veins closely spaced and parallel; stipes 0.5-0.9 mm long; stigmas shorter than styles ..... *S. planifolia*

27. Leaves pubescent beneath at maturity.

36. Leaves serrate or serrulate.

37. Pistils glabrous ..... *S. tweedyi*

37. Pistils pubescent.

38. Leaves finely serrulate, sericeous beneath with short, appressed hairs, glabrous above; stipes 0.6-0.9 mm long ..... *S. arbusculoides*

38. Leaves serrate, sericeous on both surfaces with long hairs; stipes 1.5-4 mm long ..... *S. petiolaris*

36. Leaves crenate.

39. Branchlets, buds, and immature leaves densely white villous-lanate; stipules usually absent except on vigorous shoots; pistillate aments on short leafy shoots ..... *S. hookeriana*

39. Branchlets, buds and immature leaves not densely villous except in some *S. bebbiana*; stipules present; pistillate aments sessile or on leafy shoots.

40. Pistillate aments sessile; floral bracts brown to black; styles greater than 0.5 mm long.

41. Pistils glabrous; leaves glabrous or sparsely pubescent above, villous beneath; unfolding leaves green ..... *S. lanata*

41. Pistils sericeous; leaves glabrous above, sparsely pubescent beneath with appressed hairs; unfolding leaves reddish ..... *S. planifolia*

40. Pistillate aments on leafy shoots; floral bracts tawny; styles less than 0.5 mm long.

42. Leaves sparsely pubescent on both sides with wavy hairs, apex acute; stipes 2-5 mm long ..... *S. bebbiana*

42. Leaves glabrous above, silky beneath with straight hairs, apex rounded; stipes 0.4-1.2 mm long ..... *S. vestita*

26. Leaf margins essentially entire.

43. Pistils glabrous.

44. Unfolding leaves glabrous or sparsely pubescent; floral bracts tawny.

45. Stipules present ..... *S. raupii*

45. Stipules absent or minute rudiments.

46. Stipes 0.3-1.5 mm long; leaves not glaucous above, elliptic to obovate; young leaves often with ferruginous hairs on midrib above ..... *S. farriae*

46. Stipes 2-3.2 mm long; leaves glaucous above, narrowly elliptic or narrowly obovate; lacking ferruginous hairs ..... *S. pedicellaris*

44. Unfolding leaves densely pubescent; floral bracts brown or black.

47. Stipules present, prominent.

48. Stipes 0.2-0.5 mm long; branches flexible at base; unfolding leaves sparsely pubescent; mature leaves glabrate or sparsely pubescent .... *S. lanata*

48. Stipes 0.6-1.8 mm long; branches brittle at base; unfolding leaves densely villous-lanate; mature leaves villous on both surfaces .... *S. hookeriana*

47. Stipules absent or minute rudiments.

49. Leaves densely to moderately villous-lanate on both surfaces; floral bracts densely pubescent ..... *S. hookeriana*

49. Leaves glabrous, sparsely pubescent on midrib above; floral bracts sparsely pubescent ..... *S. farriae*

43. Pistils pubescent.

50. Stipules absent.

51. Branchlets, buds, and unfolding leaves densely villous-lanate; leaves elliptic, broadly elliptic to broadly obovate, pubescent with white hairs .... *S. hookeriana*

51. Branchlets, buds, and unfolding leaves not densely villous-lanate; leaves linear to narrowly elliptic, often pubescent with a mixture of white and ferruginous hairs.

52. Floral bracts dark brown to blackish.

53. Styles 0.3-0.8 mm long; stipes 1.5-4 mm long; juvenile leaves usually with ferruginous hair ..... *S. lemmonii*

53. Styles 0-0.3 mm long; stipes 1.5-4 mm long; juvenile leaves may have only white hairs, usually mixed with ferruginous hairs .... *S. petiolaris*

52. Floral bracts tawny or light brown.

54. One year-old branches pruinose, sometimes very sparsely so; branchlets yellow in life drying with dark blotches; leaf margins typically entire; capsules 4-5.2 mm long; stipes 1.2-2.8 mm long .... *S. geyeriana*

54. One year-old branches sometimes pruinose; branchlets dark brown; leaf margins typically serrate, if entire, some leaves on plant have serrations; capsules 5-9 mm long; stipes 1.5-4 mm long .... *S. petiolaris*

50. Stipules present, at least on later leaves.

55. Pistillate aments sessile.

56. Branchlets and petioles velutinous with short erect hairs; styles 0.2-0.6 mm long; stipes 0.8-2 mm long ..... *S. scouleriana*

56. Branchlets and petioles villous with appressed hairs; styles 0.6-2 mm long; stipes 0.5-0.6 mm long ..... *S. planifolia*

55. Pistillate aments on leafy shoots.

    57. Floral bracts dark brown to blackish ..... *S. lemmonii*

    57. Floral bracts tawny or light brown.

        58. Stipes 2-5 mm long; styles 0.1-0.4 mm long; pistillate aments loosely flowered ..... *S. bebbiana*

        58. Stipes 0-1.6 mm long; styles 0.2-1 mm long; pistillate aments compactly flowered.

            59. Branchlets and leaves glabrous ..... *S. raupii*

            59. Branchlets and leaves pubescent.

                60. Leaves with ferruginous hairs scattered on both surfaces, especially young leaves ..... *S. athabascensis*

                60. Leaves lacking ferruginous hairs.

                    61. Petioles 3-14 mm long, yellowish; stipes 0.4-1.6 (2.8) mm long ..... *S. glauca*

                    61. Petioles 2-5 mm long, often reddish; stipes less than 0.5 mm long ..... *S. brachycarpa*

***Salix alaxensis* (Anderss.) Cov.**

Alaska or feltleaf willow

Habitat/Range: Wet meadows in the alpine and subalpine zones (var. *alaxensis*), talus slopes, openings in spruce-fir forests, and gravel floodplains in the alpine and subalpine zones (var. *longistylis*); infrequent in the northern half of BC; amphiberingian, var. *alaxensis* - N to AK and E to PQ, E Asia; var. *longistylis* - N to AK, YT and NT.

Notes: Two varieties occur in BC

1. Twigs densely white tomentose ..... var. *alaxensis*
1. Twigs sparsely pubescent, pruinose ..... var. *longistylis* (Rydb.) C. Schneider

***Salix alba* L. var. *vitellina* (L.) Stokes**

White willow

Habitat/Range: Cultivated and sometimes naturalized; rare in S BC, introduced from Europe.

Notes: Plants referred to this species often are the commonly cultivated and readily naturalized hybrid *S.* x *rubens* Schrank (*S. alba* x *fragilis* L.). The hybrid *S.* x *sepulcralis* Simonk (*S. alba* x *S. babylonica* L.) is occasionally naturalized and is what is commonly referred to in BC as *S. babylonica* (weeping willow). Pure *S. babylonica* does not seem to occur in BC.

***Salix amygdaloides* Anderss.**

Peach-leaf willow

Habitat/Range: Moist to mesic floodplains and lakeshores in the steppe vegetation and montane zones; rare in SC BC, known only from Osoyoos Lake and Oyama; E to PQ and S to NM and NJ.

***Salix arbusculoides* Anderss.**

Northern bush or little-tree willow

Habitat/Range: Moist to mesic sedge fens, openings in spruce forests, and lake shores in the montane zone; common in N BC; N to AK, YT and NT and E to MB, disjunct in PQ.

***Salix arctica* Pallas**

Arctic willow

Habitat/Range: Mesic slopes in the subalpine and alpine zones; common throughout BC except absent on the Queen Charlotte Islands; circumpolar arctic, N to AK, YT and NT, E to NF, and S to MT, NM and CA; Greenland, Eurasia.

Notes: Occasional erect forms may be confused with *S. glauca*. It can be distinguished from *S. glauca* by its black or dark brown floral bracts clothed with long straight hairs, styles red in life, glabrate branchlets, and long straight hairs on the underside of most leaves. It sometimes appears to hybridize with *S. glauca*.

***Salix athabascensis* Raup**

Athabasca willow

Habitat/Range: Moist fens, muskegs, and bogs in the montane zone; infrequent in N BC; N to AK and E to N MB.

Notes: Hybridizes with *S. pedicellaris*.

***Salix barclayi* Anderss.**

Barclay's willow

Habitat/Range: Moist to mesic forest openings and thickets from the steppe vegetation and montane zones to the alpine zone; common throughout BC, except rare along coast; N to AK, YT and NT, E to AB and S to ID and WA.

Notes: Hybridizes with *S. barrattiana*, *S. commutata*, and *S. farriae*.

***Salix barrattiana* Hook.** (*S. albertana* Rowlee)

Barratt's willow

Habitat/Range: Thickets and meadows in the subalpine and alpine zones, commonly on limestone; common throughout BC east of the Coast-Cascade Mountains; N to AK, YT and W NT, E to SW AB and S to MT.

Notes: The buds and foliage often have a balsam-like aroma. It hybridizes with *S. barclayi*.

***Salix bebbiana* Sarg.** (*S. depressa* L. ssp. *rostrata* [Anderss.] Hiitonen)

Bebb's, gray or beaked willow

Habitat/Range: Forests and thickets in the steppe vegetation and montane zones; common throughout BC east of the Coast-Cascade Mountains; N to AK, E to NF, and S to CA, NM, and DE.

***Salix boothii* Dorn** (*S. pseudocordata* auct. non [Anderss.] Rydb., *S. pseudomyrsinites* auct. non Anderss.)

Booth's willow

Habitat/Range: Streamsides and meadows in the subalpine zone; rare in SC BC; E to AB and S to CA and CO.

***Salix brachycarpa* Nutt.** (*S. niphoclada* Rydb. = ssp. *niphoclada* [Rydb.] Argus)

Short-fruited willow (ssp. *brachycarpa*), and snow willow (ssp. *niphoclada*)

Habitat/Range: Open forests, sedge fens, seepage on limestone, and gravel floodplains in the montane and subalpine zones (ssp. *brachycarpa*), stony alpine slopes and montane saline flats (ssp. *niphoclada*); ssp. *brachycarpa* - frequent throughout BC (except central area) east of the Coast-Cascade Mountains; ssp. *niphoclada* - frequent in N BC; ssp. *brachycarpa* - E to PQ and S to NM, UT and OR; ssp. *niphoclada* - N to AK, YT and W NT.

Notes: Two subspecies occur in BC.

1. Leaves densely pubescent on both sides; aments almost globose; styles 0.6-1.2 mm long ..... ssp. *brachycarpa*

1. Leaves sparsely pubescent above; aments long-cylindrical; styles 0.2-0.5 mm long ..... ssp. *niphoclada* (Rydb.) Argus

***Salix candida* Fluegge ex Willd.**
Hoary or sage willow
Habitat/Range: River floodplains, marl bogs, fens, and meadows in the steppe vegetation and montane zones; infrequent in N and S BC east of the Coast-Cascade Mountains; N to AK, E to NF and S to NJ, SD, CO and ID.

***Salix cascadensis* Cockerell** (*S. cascadensis* var. *thompsonii* Brayshaw)
Cascade willow
Habitat/Range: Mesic to dry slopes in the alpine zone; infrequent in SC BC; S to WA, MT, WY and UT.
Notes: The rare form with glabrous pistils, which occurs amongst more typical plants, has been named var. *thompsonii*.

***Salix commutata* Bebb**
Variable or undergreen willow
Habitat/Range: Meadows, open forests, and streamsides in the montane to alpine zones; frequent throughout BC; N to AK, E to AB, S to MT, WY, UT and CA.
Notes: Hybridizes with *S. barclayi* and *S. barrattiana*.

***Salix discolor* Muhlenb.**
Pussy willow
Habitat/Range: Wet thickets in the montane zone; common in C BC, infrequent in SC and E BC; E to NF and S to ID and TN.

***Salix drummondiana* Barratt ex Hook.** (*S. subcoerulea* Piper)
Drummond's willow
Habitat/Range: Thickets, open forests, streamsides, and gravelly floodplains in the montane and subalpine zones; common throughout BC east of the Coast-Cascade Mountains; N to S YT, E to MB and S to UT, NM and CA.

***Salix exigua* Nutt.** (*S. argophylla* Nutt., *S. interior* Rowlee)
Sandbar or narrow-leaved willow
Habitat/Range: Pioneer on sandy or gravelly floodplains and sedge meadows in the steppe vegetation and montane zones; common in SE and SC BC, less common northward; N to AK, E to NB, S to DE, LA, CA and MX.

***Salix farriae* Ball** (*S. hastata* L. var. *farriae* [Ball] Hult.)
Farr's willow
Habitat/Range: Wet meadows and streambanks in the montane and subalpine zones; rare in SE BC; E to AB and S to WY and ID.
Notes: Hybridizes with *S. barclayi*.

***Salix geyeriana* Anderss.** (*S. geyeriana* var. *meleina* Henry)
Geyer's willow
Habitat/Range: Wet streamsides and lakeshores in the lowland and steppe vegetation zones; infrequent in S BC; S to AZ, NM, and CA.
Notes: This species is sometimes difficult to distinguish from *S. petiolaris*. The branches of *S. geyeriana* do not always show the characteristic pruinosity, especially on Vancouver Island, and the branches of *S. petiolaris* are sometimes pruinose. These species require further study.

***Salix glauca* L.** (*S.* x *glaucops* Anderss.)
Grey-leaved willow, shaggy-leaved willow (var. *villosa*), and sharp-tipped willow (var. *acutifolia*)

Habitat/Range: Thickets, streamsides and wet to mesic forest openings in the montane to alpine zones; var. *villosa* - common throughout BC east of the Coast-Cascade Mountains; var. *acutifolia* - rare, known only from NW BC; circumpolar, N to AK, E to NF, S to NM; Greenland, Eurasia.

Notes: Varieties *villosa* and *acutifolia* intergrade in northern BC. The latter is known definitely only from the Haines Road region. The species apparently hybridizes with *S. arctica*. Two varieties occur in BC.

1. Underside of leaves usually glabrescent or sparsely pubescent with straggly hairs; stipules 0.3-4 (rarely 8) mm long, usually caducous; pistillate aments 16-55 (rarely 65) mm long ..... var. *villosa* (Hook.) Anderss.

1. Underside of leaves clothed with long, straight, silky hairs; stipules 4-13 mm long, narrowly elliptic, persistent more than one year; pistillate aments 35-80 mm long ..... var. *acutifolia* (Hook.) C. Schneider

***Salix hookeriana* Barratt ex Hook.** (*S. piperi* Bebb)

Hooker's willow

Habitat/Range: Swamps, lakeshores, and moist interdunal depressions in coastal areas; common in SW BC, rare on Queen Charlotte Islands; N to AK and S to N CA.

Notes: The pistils may be glabrous or tomentose. The latter condition is more common in BC. The glabrescent phase of the species with glabrous pistils, glabrate leaves, and prominent stipules has been referred to as *S. piperi* Bebb.

***Salix lanata* L. ssp. *richardsonii* (Hook.) Skvortsov**

Woolly or Richardson's willow

Habitat/Range: Moist to mesic sites from the montane to alpine zones; frequent in N BC; amphiberingian, N to AK and E to Baffin Island; E Siberia.

***Salix lemmonii* Bebb**

Lemmon's willow

Habitat/Range: Streams and wet meadows; rare on Vancouver Island; S to CA, (OR ?), and ID.

Note: Grows with *S. geyeriana* and is distinguished from it mainly by its longer, cylindrical versus subspherical aments and its longer styles (0.3-0.8 versus 0.1-0.2 mm).

***Salix lucida* Muhl.** (*S. lasiandra* Benth. var. *caudata* [Nutt.] Sudw. = ssp. *caudata*, *S. lasiandra* var. *lasiandra* = ssp. *lasiandra*)

Shining willow, Pacific willow (ssp. *lasiandra*), and tail-leaved willow (ssp. *caudata*)

Habitat/Range: Mesic to moist sites in the lowland, steppe vegetation and montane zones; ssp. *lasiandra* - common throughout BC; and ssp. *caudata* - common in SC BC; ssp. *lasiandra* - N to AK, E to SK, and S to CA and NM; ssp. *caudata* - S to SD, CA and NM.

Notes: Two subspecies occur in BC.

1. Leaves glaucous beneath, stomata usually restricted to the lower surface ..... ssp. *lasiandra* (Benth.) E. Murray

1. Leaves non-glaucous beneath, stomata abundant on both surfaces ..... ssp. *caudata* (Nutt.) E. Murray

***Salix maccalliana* Rowlee**

McCalla's willow

Habitat/Range: Riverbanks, wet slough margins, marshes, fens and rocky slopes in the montane and subalpine zones; common in S BC east of the Coast-Cascade Mountains, rare northward; N to S YT and E to PQ.

***Salix melanopsis* Nutt.** (*S. exigua* Nutt. ssp. *melanopsis* [Nutt.] Cronq., *S. sessilifolia* Nutt. var. *vancouverensis* Brayshaw)

Dusky willow

Habitat/Range: Pioneer on moist to mesic floodplains of streams and rivers in the lowland, steppe vegetation and montane zones; infrequent in S BC, rare northward; E to AB and S to CA, UT, NV, and N CO.

Notes: *Salix melanopsis*, and its villous-leaved variant (named *S. sessilifolia* var. *vancouverensis*) differ from *S. sessilifolia* in having shorter stigmas and glabrate or villous rather than sericeous leaves.

***Salix myrtillifolia* Anderss.** (*S. novae-angliae* Anderss. and *S. myrtillifolia* var. *pseudomyrsinites* [Anderss.] C. Ball = var. *cordata)*

Bilberry or blueberry willow

Habitat/Range: Deep moss in muskegs, fens, and lake and river shores (var. *myrtillifolia*); shores of lakes and rivers, dwarf birch thickets, and rarely muskegs (var. *cordata*); throughout BC east of Coast-Cascade Mountains, common in the N (var. *myrtillifolia*), infrequent in interior (var. *cordata*); var. *myrtillifolia* - N to AK and E to ON, disjunct in PQ, NB, and NF; var. *cordata* - N to AK, E to ON.

Notes: Characterized by floral bracts clothed with short, curly hairs. It hybridizes with *S. barrattiana* and possibly with *S. boothii*. Two varieties occur in BC.

1. Decumbent shrubs 0.1-1 m tall; leaves glabrous; stipules inconspicuous (0.2-2 mm long) and often caducous; styles 0.3-0.5 mm long ..... var. *myrtillifolia*
1. Erect shrubs 1-4 m tall; leaves pubescent, at least on the upper midrib; stipules prominent (1-5 mm long) and persistent; styles 0.5-0.9 mm long ..... var. *cordata* (Anderss.) Dorn

***Salix pedicellaris* Pursh** (*S. pedicellaris* var. *hypoglauca* Fern. and var. *tenuescens* Fern.)

Bog willow

Habitat/Range: Moist bogs, fens, and muskegs in the montane and subalpine zones; frequent throughout BC east of the Coast-Cascade Mountains; N to S YT and SW NT, E to NF and S to OR and NJ.

Notes: Hybrids with *S. athabascensis* are common.

***Salix petiolaris* J.E. Smith** (*S. gracilis* Anderss.)

Meadow willow

Habitat/Range: Wet thickets in the lower montane zone; rare in N BC; N to NT, E to NB and S to NJ, CO and NE.

Notes: Entire-leaved variants of the species are difficult to separate from *S. geyeriana*. See that species for comments.

***Salix planifolia* Pursh** (*S. phylicifolia* L. ssp. *planifolia* [Pursh] Hiitonen = ssp. *planifolia*; *S. phylicifolia* ssp. *pulchra* [Cham.] Hult. and *S. planifolia* var. *yukonensis* [C. Schneider] Argus = ssp. *pulchra*)

Tea-leaved or plane-leaved willow (ssp. *planifolia*), and diamond-leaved willow (ssp. *pulchra*)

Habitat/Range: Willow-dwarf birch thickets in fens and on edges of lakes and streams in the steppe vegetation and montane zones (ssp. *planifolia*), thickets, lakeshores and wet meadows in the montane to alpine zones (ssp. *pulchra*); ssp. *planifolia* - infrequent throughout BC east of the Coast-Cascade Mountains; ssp. *pulchra* - rare and restricted to NW BC; ssp. *planifolia* - N to AK, E to NF, and S to NH, NM and CA; ssp. *pulchra* - amphiberingian, N to AK and YT, E Asia.

Notes: Two subspecies occur in BC.

1. Stipules narrowly elliptic, not persistent for more than one year, 0.8-2.8 mm long ..... ssp. *planifolia*
1. Stipules linear, often persisting for two to four years, 3.5-14 (32) mm long ..... ssp. *pulchra* (Cham.) Argus

***Salix polaris* Wahlenb.** (*S. polaris* ssp. *pseudopolaris* [Flod.] Hult.)

Polar willow

Habitat/Range: Moist late snowbed and snowflush areas and scree slopes in the upper subalpine and alpine zones; common in N BC; circumpolar, N to AK, YT and NT; N Eurasia.

***Salix prolixa* Anderss.** (*S. mackenzieana* [Hook.] Barratt ex Anderss., *S. eriocephala* Michx. ssp. *prolixa* [Anderss.] Argus, *S. rigida* Muhl. var. *mackenzieana* [Hook.] Cronq., *S. rigida* var. *macrogemma* [Ball in Piper & Beattie] Cronq.)

Mackenzie's willow

Habitat/Range: Forest openings, sand and gravel riverbars in the lowland, steppe vegetation, and montane zones; common throughout BC; N to YT, E to N SK and S to WY, UT and CA.

Notes: The branchlets of this species are usually glabrous; but plants with spreading-hairy branchlets, the basis of the name *S. rigida* var. *macrogemma*, are common on Vancouver Island and appear scattered elsewhere. Plants with hairy branchlets are sometimes difficult to distinguish from *S. barclayi*.

***Salix pseudomonticola* Ball** (*S. monticola* auct. non Bebb)

Mountain or serviceberry willow

Habitat/Range: Mesic to moist fens, forests, and river floodplains in the montane zone; infrequent in BC east of the Coast-Cascade Mountains; N to AK, E to PQ and S to ID and SD.

***Salix pyrifolia* Anderss.**

Balsam willow

Habitat/Range: Muskegs, fens, and stream margins in the montane zone; infrequent in NE and WC BC; N to S NT, E to NF and S to WI, MI, and VT; disjunct in YT.

Notes: Buds and foliage have a balsam-like fragrance.

***Salix raupii* Argus**

Raup's willow

Habitat/Range: Thickets in moist, open forests and on gravel floodplains in the montane zone; rare in N BC; N to NT and E to W AB.

***Salix reticulata* L.** (*S. nivalis* Hook. and *S. saximontana* Rydb. = ssp. *nivalis*)

Netted willow, net-veined willow (ssp. *reticulata*), dwarf snow willow (ssp. *nivalis*), and glabrous dwarf willow (ssp. *glabellicarpa*)

Habitat/Range: Moist to dry tundra and openings in the alpine and subalpine zones (ssp. *reticulata*), moist meadows in the alpine zone (ssp. *nivalis*) and moist cliffs and ledges in the alpine zone (ssp. *glabellicarpa*); common in N BC (ssp. *reticulata*), common in S half of BC (ssp. *nivalis*) and rare on the Queen Charlotte Islands (ssp. *glabellicarpa*); ssp. *reticulata* - circumpolar, N to AK, YT and NT and E to NF, N Eurasia; ssp. *nivalis* - S to NM and CA; and ssp. *glabellicarpa* - endemic to BC.

Notes: Three subspecies occur in BC.

1. Pistils densely sericeous; stipes sericeous; bract apices rounded or retuse.
   2. Leaves 15-66 mm long, sericeous beneath, prominently impressed-reticulate above; pistillate aments with 20-40 or more flowers ..... ssp. *reticulata*
   2. Leaves 5-25 mm long, glabrous beneath, usually plane above; pistillate aments with 2-10 (25) flowers ..... ssp. *nivalis* (Hook.) Löve, Löve, & Kapoor
1. Pistils glabrous and glaucous, or with patches of pubescence; stipes glabrous; bract apices retuse ..... ssp. *glabellicarpa* Argus

***Salix scouleriana* Barratt ex Hook.** (*S. scouleriana* var. *coetanea* Ball, *S. scouleriana* f. *poikila* Schneider)

Scouler's willow

Habitat/Range: Dry forests and moist edges of rivers and lakes in the lowland, steppe vegetation and montane zones; common throughout BC; N to AK and YT, E to MB and S to SD, NM and CA.

Notes: This species has two forms of pubescence on the lower leaf surface: 1) sparsely pubescent with short, appressed, ferruginous or white hairs, and 2) densely lanate with long, wavy, erect, white hairs. Both forms have velutinous petioles and branchlets.

***Salix serissima* (Bailey) Fern.**
Autumn willow
Habitat/Range: Wet thickets, meadows, and fens in the montane zone; rare in NE BC, known only from Dawson Creek; N to NT and E to NF.

***Salix sessilifolia* Nutt.** (*S. macrostachys* Nutt.)
Soft-leaved or sessile-leaved sandbar willow
Habitat/Range: Sandbars and river terraces in the lowland and montane zones; rare in extreme SW BC (Fraser River Valley); S to OR.
Notes: It is distinguished from *S. melanopsis* by its long, slender stigmas and densely sericeous leaves.

***Salix setchelliana* Ball**
Setchell's willow
Habitat/Range: Pioneer on moist to mesic, sandy to gravelly sites along glacial rivers and on glacial moraines in the montane zone; rare in extreme NW BC; endemic to AK, YT, and BC.

***Salix sitchensis* Sanson ex Bong.**
Sitka willow
Habitat/Range: Moist to dry sites along creeks and edges of forests and meadows in the lowland and montane zones; common west of the Coast-Cascade Mountains, scattered in SC BC; N to AK and S to MT and CA, disjunct in AB.

***Salix stolonifera* Cov.**
Creeping willow
Habitat/Range: Alpine tundra; infrequent in NW BC; N to AK and YT and E to AB.
Notes: Hybridizes with *S. arctica* and *S. barclayi*

***Salix tweedyi* (Bebb ex Rose) Ball** (*S. barrattiana* Hook. var. *tweedyi* Bebb ex Rose)
Tweedy's willow
Habitat/Range: Moist streamsides and lakeshores in the montane zone; rare in SC BC, known only from Bolean Lake; S to WA, E to MT and WY.

***Salix vestita* Pursh**
Rock willow
Habitat/Range: Moist to dry open forests and rocky streamsides in the upper montane and subalpine zones, rarely in the alpine zone; locally common in extreme E BC, less common westward; E to AB, S to OR and MT, disjunct in N MB and NF.

SANTALACEAE

1. Flowers 3 or 4, or fewer, in upper leaf axils; hypanthium flared; fruits orange red, juicy ..... *Geocaulon*

1. Flowers several to numerous in subterminal or terminal cymes; hypanthium campanulate to turbinate; fruits blue to purplish or brown, dry ..... *Comandra*

COMANDRA

***Comandra umbellata* (L.) Nutt.** (*C. pallida* A. DC. = var. *pallida*; *C. californica* Eastw. ex Rydb. = var. *californica*)
Pale comandra (var. *pallida*) and California comandra (var. *californica*)
Habitat/Range: Dry sites in the steppe vegetation and montane zones; infrequent in NE, SC and SE BC, rare on S Vancouver Island; N to YT and NT, E to NF and S to GA, TX, AZ, NM and MX.

Notes: Two intergrading varieties occur in BC.

1. Calyx lobes narrowly lanceolate, (2.5) 3-4 mm long; leaves thick and glaucous, the midnerve sometimes visible; fruits 6-9 mm long; plants more frequent to the north ..... var. *pallida* (A. DC.) M.E. Jones
1. Calyx lobes ovate or ovate-lanceolate, (1.5) 2-2.5 (3) mm long (if the lobes 2.5 mm or longer then the leaves usually not glaucous without visible midnerves); fruits 4-6 mm long; plants of S BC ..... var. *californica* (Eastw. ex Rydb.) C.L. Hitchc.

GEOCAULON

***Geocaulon lividum* (Richards.) Fern.** (*Comandra livida* Richards.)

Bastard toad-flax, or northern comandra

Habitat/Range: Wet bogs to mesic forests in the montane and subalpine zones; common throughout BC in and E of the Coast-Cascade Mountains except rare on the N coast and SC BC; N to AK, YT and NT, E to NF and S to MN, OH, MA, N ID and WA.

SARRACENIACEAE

SARRACENIA

Sarracenia purpurea* L. ssp. *purpurea

Common pitcher-plant

Habitat/Range: Bogs and fens in the montane zone; rare in NE BC, known only from the Ft. Nelson area; N to NT, E to NF and S to MN, IL, OH and DE.

SAXIFRAGACEAE[17]

1. Styles 3; petals deeply cleft; flowers sometimes partially replaced by bulblets ..... *Lithophragma*
1. Styles usually 2; petals entire to variously divided, sometimes absent; bulblets usually absent.
   2. Petals absent; sepals 4 ..... *Chrysosplenium*
   2. Petals usually present; sepals 5.
      3. Stamens 3 or 5 (where 5, one or more occasionally rudimentary).
         4. Stamens 3; calyces greenish-purple, 7-10 mm long, cylindric, oblique at the base, irregular above ..... *Tolmiea*
         4. Stamens 5; calyces not as above.
            5. Petals absent ..... *Heuchera*
            5. Petals present.
               6. Petals pectinate, divided into filamentous segments ..... *Mitella*
               6. Petals entire or lobed.
                  7. Petals with 3-7 lobes.
                     8. Stems usually leafy; calyces tubular ..... *Elmera*
                     8. Stems usually leafless; calyces campanulate ..... *Mitella*

[17] Contributed by John G. Packer.

7. Petals entire or bilobed.
   9. Ovaries 2-loculed, placentation axile.
      10. Large non-bulbiferous plants, 3-6 dm tall; basal leaves 2-6 (8) cm broad ..... *Boykinia*
      10. Smaller plants, 1-3 (3.5) dm tall, with bulbiferous root-stocks; basal leaves 1-4 cm broad ..... *Suksdorfia*
   9. Ovaries 1-loculed, placentation parietal.
      11. Calyces adnate to the ovaries only at the base ..... *Elmera*
      11. Calyces adnate to the ovaries from halfway up to almost the top.
         12. Flowers 3-4 mm long, stamens not exserted ..... *Mitella*
         12. Flowers (including the often exserted stamens) longer ..... *Heuchera*
3. Stamens 10.
   13. Petals laciniate or pectinately divided into filiform segments.
      14. Small plants, up to 2 dm tall; basal leaves 1-3 cm broad; petals pectinate ..... *Mitella*
      14. Large plants, up to 8 dm tall; basal leaves 3-10 cm broad; petals laciniate ..... *Tellima*
   13. Petals entire.
      15. Ovaries 1-loculed, placentation parietal; capsule valves of markedly unequal size ..... *Tiarella*
      15. Ovaries 2-loculed, placentation axile; capsule valves of about equal size.
         16. Carpels almost separate, united only towards the base; basal leaves, 3-15 cm long, glabrous, leathery, narrowly obovate to elliptic or ovate-oblong ..... *Leptarrhena*
         16. Carpels united considerably above the base; leaves various but not leathery ..... *Saxifraga*

BOYKINIA

***Boykinia elata* (Nutt. in T.& G.) Greene** (*B. occidentalis* T.& G.)
Coast boykinia
Habitat/Range: Moist woods and streambanks in the lowland and montane zones; frequent on Vancouver Island and the adjacent mainland; S to CA.

CHRYSOSPLENIUM

1. Sepals green, erect, of equal size; stamens 4 ..... *C. tetrandrum*
1. Sepals golden-yellow, spreading, the outer pair wider; stamens of the larger flowers 5-8 .... *C. iowense*

***Chrysosplenium iowense* Rydb.** (*C. alternifolium* L. var. *iowense* [Rydb.] Boivin)
Iowa golden-saxifrage or golden carpet
Habitat/Range: Stream banks and marshy sites in the steppe vegetation zone of the upper Peace River drainage; rare in BC, known only from the Dawson Creek area; N to SW NT and E to SW MB, disjunct NE IA.
Notes: Included by some authors in the European *C. alternifolium* L., but it is quite distinct.

***Chrysosplenium tetrandrum* (Lund) T. Fries** (*C. alternifolium* L. var. *tetrandrum* Lund)
Northern golden-saxifrage or golden carpet
Habitat/Range: Moist, shady banks and ledges in the subalpine and alpine zones; common throughout N and E BC, absent from SW BC including the Queen Charlotte Islands and Vancouver Island; circumpolar, N to AK, YT and NT, E to N PQ and Labr. and S to WA, disjunct in CO; Eurasia.
Notes: Included by some authors in *C. alternifolium* L., but it is quite distinct.

ELMERA

Elmera racemosa* (S. Wats.) Rydb. var. *racemosa
Elmera
Habitat/Range: Rock crevices, mountain ledges in the montane zone; rare in SW BC, known only from Cheam Peak; S to WA.

HEUCHERA

1. Panicle open to highly diffuse; stamens exerted.
   2. Calyces 5-10 mm long (as measured from the tip of the pedicel), seldom as broad .... *H. richardsonii*
   2. Calyces 1.5-3.0 mm long (as measured from the tip of the pedicel), and nearly as broad.
      3. Leaf blades (as measured from the basal sinus) almost invariably broader than long; petioles glabrous or occasionally glandular-puberulent; stipules ciliate; seeds brown, 3-4 times longer than broad ... . *H. glabra*
      3. Leaf blades (as measured from the basal sinus) mostly longer than broad; petioles usually villous, with white or brownish hairs, rarely glabrous or glandular-puberulent; stipule margins villous; seeds black, less than twice as long as broad ..... *H. micrantha*
1. Panicle narrow, congested; stamens not exserted.
   4. Stamens 2.3-3.2 mm long, filaments about 3 times the length of the anthers; sepals bright green .... *H. chlorantha*
   4. Stamens 1.0-2.5 mm long, filaments 1-2 times the length of the anthers; sepals cream to yellow .... *H. cylindrica*

***Heuchera chlorantha* Piper**
Meadow alumroot
Habitat/Range: Moist grassy bluffs, rocky river banks and along forest margins in the lowland and montane zones; frequent on the Queen Charlotte Islands, C BC, S Vancouver Island and adjacent mainland; S to OR.

***Heuchera cylindrica* Dougl. ex Hook.**
Round-leaved alumroot
Habitat/Range: Mesic rocky places, cliffs and open talus slopes from the lowland zone to the subalpine and occasionally the alpine zone; common in SC and SE BC north to Quesnel; E to SW AB and S to WY, N NV and NE CA.
Notes: Four intergrading and largely sympatric varieties occur in BC.
1. Petioles glabrous to minutely glandular-puberulent; plants mainly of SE BC.

2. Largest leaves 3.2-8.0 cm long, teeth not or only slightly mucronate ..... var. *glabella* (T.& G.) Wheelock
2. Largest leaves 2.2-4.8 cm long, teeth usually strongly mucronate ..... var. *septentrionalis* Rosend., Butters & Lakela

1. Petioles generally with conspicuous white hairs intermixed with short glandular hairs; plants mainly of SC BC.
3. Largest leaves 3.0-8.5 cm long, base slightly to strongly cordate ..... var. *cylindrica*
3. Largest leaves 2.0-6.0 cm long, base truncate to somewhat cordate ..... var. *orbicularis* (Rosend., Butters & Lakela) Calder & Savile

***Heuchera glabra* Willd. ex Roem. & Schult.**
Smooth alumroot
Habitat/Range: Moist rock crevices and streambanks from the montane to alpine zones; frequent in S BC, infrequent northwards and absent in NE BC; N to AK, E to SW AB and S to WA.

***Heuchera micrantha* Dougl. ex Lindl. var. *diversifolia* (Rydb.) Rosend., Butters & Lakela**
Small-flowered alumroot
Habitat/Range: Streambanks, rock crevices and talus slopes from the lowland to subalpine zones; infrequent in the Coast Mountains of NW BC, frequent on Vancouver Island and the adjacent mainland E to Manning Provincial Park; S to ID and CA.

***Heuchera richardsonii* R. Br.**
Richardson's alumroot
Habitat/Range: Dry sandy prairies, gravelly lake shores and slopes in the upper Peace River drainage; locally common in NE BC; N to NT, E to ON and S to WI, SD and CO.

LEPTARRHENA

***Leptarrhena pyrolifolia* (D. Don) R. Br. ex Ser.**
Leatherleaf saxifrage
Habitat/Range: Streambanks and moist slopes in the montane and subalpine zones; frequent throughout BC, except absent in the NE; N to AK, YT and NT, E to AB and S to N ID and WA.

LITHOPHRAGMA

1. Seeds tuberculate; entire surface of the stigmas papillate; petals 5-parted, the sinuses extending ⅘ or more to the base; flowers often replaced by bulbils ..... *L. glabrum*

1. Seeds not tuberculate; only the margin of the stigmas papillate; petals 3-parted or 5(7)-parted, with the sinuses extending only ⅓-½ to the base; flowers rarely replaced by bulbils.

2. Ovaries completely inferior; petals 3-parted, 7-16 mm long; leaves dark or reddish green, sparsely to densely pubescent ..... *L. parviflorum*

2. Ovaries less than half-inferior; petals 5(7) parted, 3-7 mm long; leaves light green, sparsely pubescent ..... *L. tenellum*

***Lithophragma glabrum* Nutt. in T.& G.** (*L. bulbifera* Rydb.)
Smooth woodland star
Habitat/Range: Dry, open, grassy or gravelly sites, from the lowland to subalpine zones; frequent on SE Vancouver Island and S BC; E to SK and S to SD, WT, CO and CA.

***Lithophragma parviflorum* (Hook.) Nutt. ex T.& G.**
Small-flowered woodland star
Habitat/Range: Dry grassland and prairie, coastal bluffs in the lowland, montane and subalpine zones; frequent on SE Vancouver Island and extreme S BC; E to AB and S to SD, MT, WY, UT and CA.

***Lithophragma tenellum* Nutt. in T.& G.** (*L. tenellum var. thompsonii* [Hoover] C.L. Hitchc., *L. thompsonii* Hoover)
Slender woodland star
Habitat/Range: *Pinus ponderosa* forests and mesic aspen stands from the steppe zone to subalpine zones; infrequent in SC BC; S to MT, WY, CO, NM and CA.
Notes: Some BC specimens have been recognized as *L. thompsonii* Hoover but this taxon is of dubious merit.

MITELLA

1. Stamens 10 ..... *M. nuda*
1. Stamens 5.
   2. Stamens opposite the petals ..... *M. pentandra*
   2. Stamens opposite the sepals.
      3. Stems with 1-3 leaves; styles about 1 mm long; flowers blooming from the top down ..... *M. caulescens*
      3. Stems usually leafless; styles much less than 1 mm long; flowers blooming from the bottom up.
         4. Calyces cup-shaped, the lobes more or less erect; petals three-lobed (occasionally entire) ..... *M. trifida*
         4. Calyces saucer-shaped, the lobes spreading and recurved; petals pectinately divided into filiform segments.
            5. Leaf blades 4-8 cm broad, usually broader than long (as measured from the basal sinus); petioles with an abundance of long, flexuous, brownish hairs; plants of S BC .... *M. breweri*
            5. Leaf blades 1.5-3.5 cm broad, usually longer than broad (as measured from the basal sinus); petioles lacking long flexuous brownish hairs, except near the leaf blade; plants of S Vancouver Island ..... *M. ovalis*

***Mitella breweri* A. Gray**
Brewer's mitrewort
Habitat/Range: Moist valleys and forests in the montane and subalpine zones; locally frequent in S BC (N to Revelstoke); E to AB and S to MT, ID and CA.

***Mitella caulescens* Nutt.**
Leafy mitrewort
Habitat/Range: Moist woods and wet meadows in the lowland and montane zones; rare on S Vancouver Island and along the Chilliwack River; S to ID, MT and CA.

***Mitella nuda* L.**
Common or bare-stemmed mitrewort
Habitat/Range: Moist woods and boggy places in the lowland and montane zones; common throughout BC east of the Coast-Cascade Mountains; amphiberingian, N to SE AK, S YT and SW NT, E to NF and S to MN, PA and WA; E. Asia.

***Mitella ovalis* Greene**
Oval-leaved mitrewort
Habitat/Range: Wet woods and streambanks in the lowland zone; locally common on S Vancouver Island; S to CA.

***Mitella pentandra* Hook.**
Five-stamened mitrewort
Habitat/Range: Moist woods, streams, wet meadows and talus slopes from the montane to alpine zones; frequent throughout BC except NE BC; N to AK and YT, E to AB and S to CO and CA.

***Mitella trifida* R.C. Grah.**
Three-toothed mitrewort
Habitat/Range: Moist woods and slopes in the montane zone; locally frequent on S Vancouver Island and S BC, disjunct and infrequent in the Hazelton Mountains; E to AB and S to MT and CA.

SAXIFRAGA

1. Flowers purple; leaves opposite ..... *S. oppositifolia*
1. Flowers not purple; leaves otherwise.
   2. Flowers yellow (drying yellow in *S. funstonii* and *S. bronchialis*).
      3. Leaves ciliate, with stiff bristle-like hairs.
         4. Plants with conspicuous stolons ..... *S. flagellaris*
         4. Plants lacking stolons.
            5. Petals clawed; petal spots yellow; plants of NW BC ..... *S. funstonii*
            5. Petals not clawed; petal spots red or crimson; plants of C and S BC ..... *S. bronchialis*
      3. Leaves not ciliate.
         6. Sepals reflexed; petals clawed; leaves obovate ..... *S. serpyllifolia*
         6. Sepals erect or spreading; petals clawless; leaves linear or lanceolate.
            7. Flowers solitary, 10-15 mm broad; leaves 10-15 mm long, in a basal rosette ..... *S. hirculus*
            7. Flowers several, 5-10 mm broad; leaves shorter, matted ..... *S. aizoides*
   2. Flowers greenish, white or pink.
      8. Bulbils present basally, or in the axils of the leaves and/or the inflorescence, where they often replace flowers.
         9. Leaves distinctly petiolate; blades orbicular to reniform, about as long as broad.
            10. Flowers normal; bulbils basal ..... *S. rivularis*
            10. Flowers mostly replaced by bulbils.
               11. Inflorescence diffuse, the branches often arching and each usually with a terminal flower; basal leaves (2) 3-10 cm broad ..... *S. mertensiana*
               11. Inflorescence a raceme, with a single terminal flower; basal leaves 1-2 cm broad ..... *S. cernua*

9. Leaves not distinctly petiolate; the oblanceolate blades tapering basally to a not clearly delineated petiole ..... *S. ferruginea*

8. Bulbils absent.

12. Flowering stems with at least one and usually several leaves.

13. Leaves conspicuously ciliate with stiff, bristle-like, nonglandular hairs.

14. Leaves tricuspidate, up to 5 mm long and nearly as broad as long; plants of N Vancouver Island and Queen Charlotte Islands ..... *S. taylori*

14. Leaves entire; plants of NW, C and S BC.

15. Petals clawed, mostly drying a deep yellow; petal spots yellow; plants of NW BC ..... *S. funstonii*

15. Petals not clawed, mostly drying cream or pale yellow; petal spots red or crimson; plants of C and S BC ..... *S. bronchialis*

13. Leaves not ciliate with stiff, bristle-like nonglandular hairs.

16. Leaves with a clearly distinct petiole and blade, orbicular reniform about as long as broad, 3-5 toothed; bulbils often present basally ..... *S. rivularis*

16. Leaves not as above, usually longer than broad, tapering at the base, 3-lobed at the apex; bulbils not present.

17. Basal leaves stiff, with 3 apical teeth produced into rigid spines, leaf margins glandular hairy ..... *S. tricuspidata*

17. Basal leaves not stiff, the apical teeth (lobes) not produced into rigid spines, leaf margins not glandular hairy.

18. Plants annual, introduced in the Victoria area ..... *S. tridactylites*

18. Plants perennial, native to BC.

19. Plants densely matted; leaves ligulate to narrowly flabelliform, trifid at the apex, mostly 1.0-1.5 mm wide at the base ..... *S. cespitosa*

19. Plants not densely matted, the stems arising from a basal rosette; leaves oblanceolate to spatulate, the apex shallowly 3-lobed or entire, base more than 1.5 mm wide ..... *S. adscendens*

12. Flowering stems leafless, or with only reduced bract-like leaves, mainly in the inflorescence.

20. Leaves entire (at most slightly undulate).

21. Plants small; flowering stems 3-8 cm high; leaves 3-10 (12) mm long ..... *S. tolmiei*

21. Plants larger; flowering stems 10-30 (40) cm high; leaves 10-40 (120) mm long.

22. Petals more than 2 mm long, longer than the sepals; inflorescences conical with open cymose lateral branches; plants of SW BC ..... *S. integrifolia*

22. Petals less than 2 mm long, as long as or shorter than the sepals; inflorescences cylindrical with compact cymules on several lateral branches; plants of SC BC ..... *S. nidifica*

20. Leaves variously toothed or lobed.

    23. Leaves with petioles 1-3 times longer than the blades; lamina orbicular to reniform and distinctly toothed all around.

        24. Petals narrow to broadly elliptic, base cuneate or only slightly clawed, unspotted ..... *S. odontoloma*

        24. Petals broadly elliptic to suborbicular, conspicuously clawed, with two yellow or green spots near the base ..... *S. nelsoniana*

    23. Leaves with petioles much shorter or absent (the blades merely narrowing towards the base); blade margins apically crenate, serrate, or toothed.

        25. Leaves fan-shaped or narrowly obdeltoid ..... *S. lyallii*

        25. Leaves not fan-shaped, mostly lanceolate, ovate, elliptic or rhombic.

            26. Inflorescences cylindric, spikelike, interrupted; petals green with a crimson tinge to very deep crimson; leaves glabrous above, sparsely pubescent below (the hairs nonglandular and with brownish-crimson septa) ..... *S. hieracifolia*

            26. Inflorescences globose, pyramidal and congested to open, divaricate and flat-topped; petals white, often tinged with pink; leaves often puberulent or densely pubescent below.

                27. Ovaries ½ or more inferior; inflorescences congested, even in fruit; leaves orbicular to ovate or rhomboid ..... *S. nivalis*

                27. Ovaries much less than ½ inferior; inflorescences generally more open, sometimes quite diffuse; leaves lanceolate to ovate or elliptic.

                    28. Sepals strongly reflexed; petals with two yellow spots at the base; ovaries completely superior ..... *S. reflexa*

                    28. Sepals not strongly reflexed; petals lacking yellow spots; ovaries partially inferior (up to ⅓).

                        29. Inflorescences open, corymbose; leaves ovate to occasionally rhombic, with very regular teeth (resembling the cogs on a gear wheel), frequently densely rusty-tomentose below ..... *S. rufidula*

                        29. Inflorescences congested to open, but seldom corymbose; leaves ovate to frequently rhombic, irregular teeth, generally lacking rusty tomentum below ..... *S. occidentalis*

***Saxifraga adscendens* L. ssp. *oregonensis* (Raf.) Bacig. in Abrams**

Wedge-leaved saxifrage

Habitat/Range: Moist alpine banks and ledges; frequent in the Coast-Cascade Mountains and the Rocky Mountains of SE BC; N to AK, YT and SW NT and S to OR, UT and CO.

***Saxifraga aizoides* L.**

Evergreen or yellow saxifrage

Habitat/Range: Streambanks and moist talus slopes in the alpine zone; frequent in the Rocky Mountains, the Selkirk Range and NW BC; circumpolar, N to SE YT and NT and E to NF; Greenland, Europe.

***Saxifraga bronchialis* L. ssp. *austromontana* (Wieg.) Piper**

Spotted or prickly saxifrage

Habitat/Range: Rock outcrops and scree in the montane and subalpine zones; common in C and S BC north to 55°N; E to AB and S to NM, UT, ID and OR.

***Saxifraga cernua* L.**

Nodding saxifrage

Habitat/Range: Streambanks, moist screes and ledges in the alpine zone; common in the Rocky Mountains, the Selkirk Range and NC BC; circumpolar, N to AK, YT and NT, E to Labr. and PQ and S to MT, ID and WA, disjunct in SD, CO, NM, UT, NV; Iceland, N Eurasia.

***Saxifraga cespitosa* L. sens. lat.** (*S. cespitosa* var. *minima* Blank, *S. cespitosa* var. *emarginata* [Small] Rosend., *S. cespitosa* var. *subgemmifera* [Engl. & Irmsch.] C.L. Hitchc., *S. cespitosa* ssp. *monticola* [Small] Pors., *S. cespitosa* ssp. *sileneflora* [Sternb. ex Charnisso] Hult.)

Tufted saxifrage

Habitat/Range: Dry to moist, open gravelly areas, streambanks, cliffs, rocky slopes and ledges from the lowland to alpine zones; frequent throughout BC, except SC BC; circumpolar, N to AK and YT, E to NF and S to NM, NV and OR; NE Eurasia.

Notes: A highly variable species complex in which many taxa have been described. Since there is no satisfactory treatment of even the North American representatives, the recognition of the supposed taxa that occur in BC would serve little purpose here.

***Saxifraga ferruginea* R.C. Grah.** (*S. newcombei* [Small] Engl. & Irmsch.)

Alaska saxifrage

Habitat/Range: Moist rock outcrops in the lowland zone to streambanks and ledges in the alpine zone; frequent throughout BC except SC and NE BC; N to AK and YT, E to AB and S to MT and CA.

***Saxifraga flagellaris* Willd. in Sternb. ssp. *setigera* (Pursh) Tolm.**

Stoloniferous saxifrage

Habitat/Range: Dry to moist turfy alpine slopes and ridges, predominantly on limestone; infrequent in the Rocky Mountains and N BC south to 57°N, disjunct in the Bulkley Mountains; amphiberingian, N to AK, YT and W NT and S to AB; NE Asia.

***Saxifraga funstonii* (Small) Fedde** (*S. bronchialis* L. ssp. *funstonii* [Small] Hult.)

Funston's saxifrage

Habitat/Range: Dry alpine tundra and fell-fields; locally frequent in extreme NW BC; amphiberingian, N to AK, YT and W NT; E Asia.

***Saxifraga hieracifolia* Waldst. & Kit.**

Hawkweed-leaved saxifrage

Habitat/Range: Wet alpine meadows; rare in extreme N BC, known only from Liard Plateau; circumpolar, N to AK, YT and NT; Greenland, N Eurasia.

***Saxifraga hirculus* L.**

Yellow marsh saxifrage

Habitat/Range: Alpine bogs and wet meadows; rare in N BC; circumpolar, N to AK, YT and NT, E to N PQ, disjunct in CO; Iceland, N Eurasia.

***Saxifraga integrifolia* Hook.** (*S. integrifolia* var. *leptopetala* [Suksd.] Engl. & Irmsch.)

Grassland saxifrage

Habitat/Range: Dry grassy slopes and moist banks in the lowland and montane zones; frequent in SW BC; S to CA.

***Saxifraga lyallii* Engl.**

Red-stemmed or Lyall's saxifrage

Habitat/Range: Streambanks and wet meadows from the montane to the alpine zones; frequent throughout all but NE BC; N to AK, YT and SW NT, E to AB and S to MT and WA.

Notes: Hybridizes extensively with *S. odontoloma* in S BC. Two varieties occur in BC.

1. Plants 4.0-14.0 cm high; leaves spatulate; plants of extreme SE and SW BC ..... var. *lyallii*
1. Plants 9.0-30.0 cm high; leaves flabellate; the widely distributed variety in BC ..... var. *hultenii* Calder & Savile

***Saxifraga mertensiana* Bong.**

Wood or Merten's saxifrage

Habitat/Range: Streambanks and moist rocks in the lowland to subalpine zones; frequent in SC BC; N to S AK, E to AB and S to MT and CA.

***Saxifraga nelsoniana* D. Don** (*S. punctata* L., *S. arguta* D. Don, *S. aestivalis* auct. non Fisch. & Mey.)

Cordate-leaved saxifrage

Habitat/Range: Moist rocks, ledges and streambanks from the montane to alpine zones; locally frequent throughout W and SE BC; amphiberingian, N to AK, YT and NT, E to AB and S to OR; NE Asia.

Notes: Four intergrading subspecies occur in BC.

1. Largest leaves mostly with 9-12 teeth; capsules 6-12 mm long; plants of the Queen Charlotte Islands and adjacent mainland ..... ssp. *carlottae* (Calder & Savile) Hult.
1. Largest leaves mostly with 12-18 teeth; capsules 3-8 mm long; plants of mainland BC.
   2. Panicles open, the hairs appressed; plants slender; plants of SW BC ..... ssp. *cascadensis* (Calder & Savile) Hult.
   2. Panicles often congested, the hairs ascending; plants robust; plants of N BC and the Rocky Mountains.
      3. Largest leaves 2.3-7.7 cm broad, slightly ciliate and hirsute near the petiole; capsules cleft 25-60%; plants of extreme NW BC ..... ssp. *pacifica* (Hult.) Hult.
      3. Largest leaves 1.0-3.8 cm broad, glabrous or sparingly pubescent; capsules cleft 40-75%; plants of N BC and the Rocky Mountains ..... ssp. *porsildiana* (Calder & Savile) Hult.

Saxifraga nidifica* (Greene) Small var. *nidifica (*S. integrifolia* Hook. var. *leptopetala* [Suksd.] Engl. & Irmsch., *S. integrifolia* Hook. var. *columbiana* [Piper] C.L. Hitchc.)

Meadow saxifrage

Habitat/Range: Dry open meadows in pine forests, occasionally on moist gravelly hillsides in the montane zone; locally frequent in extreme SC BC east of the Cascade Mountains, S to MT, NV and CA.

***Saxifraga nivalis* L.**

Alpine saxifrage

Habitat/Range: Moist rocky slopes and ledges in the alpine zone; infrequent in N BC; circumpolar, N to AK, YT and NT and E to PQ; Eurasia.

Notes: Plants with rust coloured hairs on the petioles and underside of the leaves have been recognized as var. *tenuis* Wahl. (*S. tenuis* [Wahl.] H. Sm.). They are generally of somewhat smaller stature and more delicate than typical *S. nivalis*. The distribution of var. *tenuis* in BC remains to be established.

***Saxifraga occidentalis* S. Wats.**

Western saxifrage

Habitat/Range: Moist to dry open areas from the montane to alpine zones; common throughout most of BC to 59°N, but absent from NE BC and the coastal islands; E to AB and S to NM, NV and OR.

Notes: A recently described variety of *S. occidentalis*, var. *allenii* (Small) C.L. Hitchc., that may occur in BC may be distinguished from var. *occidentalis* only with difficulty, but has larger, usually pyramidal, inflorescences — generally more than 5 cm long at anthesis and more than 10 cm long in fruit.

***Saxifraga odontoloma* Piper** (*S. arguta sensu* auct. non D. Don)
Stream saxifrage
Habitat/Range: Wet streambanks and moist shady places in the montane and subalpine zones; frequent in SW BC; E to AB and S to MT, NM, AZ, NV, and CA.
Notes: Hybridizes extensively with *S. lyallii* in S BC.

***Saxifraga oppositifolia* L.**
Purple mountain saxifrage
Habitat/Range: Moist slopes and ledges in the alpine zone; frequent throughout BC; circumpolar, N to AK, YT and NT, E to NF and S to VT, NM, WY, ID and OR; Iceland, N Eurasia.

***Saxifraga reflexa* Hook.**
Yukon saxifrage
Habitat/Range: Dry to mesic alpine slopes and fellfields; infrequent in N BC; N to AK, YT and NT.

***Saxifraga rivularis* L. sens. lat.** (*S. debilis* Engelm. ex A. Gray, *S. hyperborea* R.Br., *S. rivularis* var. *flexuosa* [Sternb.] Engl. & Irmsch.)
Brook saxifrage
Habitat/Range: Streambanks, rock crevices, wet ledges and talus in the subalpine and alpine zones; frequent in the Rocky Mountains, Coast-Cascade Mountains and N BC; circumpolar, N to AK, YT and NT, E to NF and S to NH, MT, CO, AZ and CA; Iceland, N Eurasia.

***Saxifraga rufidula* (Small) Jas. Macoun** (*S. occidentalis* S. Wats. var. *rufidula* [Small] C.L. Hitchc., *S. aequidentata* [Small] Rosend., *S. tischii* Skelly)
Rusty-haired saxifrage
Habitat/Range: Rock outcrops in the lowland to alpine zones; frequent on Vancouver Island; S to WA and OR.
Notes: A segregate of this species has recently been described as *S. tischii* by R. Skelly. It is distinguished from *S. rufidula* by its persistent green petals, and has been reported from the subalpine and alpine zones of Vancouver Island (Castlecrag Mountain) and the Olympic Mountains of Washington. The complex, however, requires a thorough monographic revision.

***Saxifraga serpyllifolia* Pursh**
Thyme-leaved saxifrage
Habitat/Range: Moist gravelly scree slopes in the alpine zone; rare in extreme NW BC; amphiberingian, N to AK, YT and W NT, disjunct on Melville Is, NT; NE Asia.

***Saxifraga taylori* Calder & Savile**
Taylor's saxifrage
Habitat/Range: Moist rocky slopes and cliffs in the subalpine and alpine zones; frequent in the Queen Charlotte Islands and NW Vancouver Island; endemic.

Saxifraga tolmiei* T.& G. var. *tolmiei
Tolmie's saxifrage
Habitat/Range: Streambanks, moist screes and ledges in the alpine zone; locally frequent in the Coast-Cascade Mountains N to 57°N and on Vancouver Island; N to SE AK and S to CA, disjunct in MT, ID.

***Saxifraga tricuspidata* Rottb.**
Three-toothed saxifrage
Habitat/Range: Dry open slopes and ridges in the alpine zone; common in NC BC S to 52°N; N to AK, YT and NT and E to Labr. and PQ; Greenland.

***Saxifraga tridactylites* L.**
Rue-leaved saxifrage
Habitat/Range: Dry rock outcrops and walls; rare, known in North America from only Fort Rodd Hill, near Victoria; introduced from Europe.
Notes: See Ceska (1975) for an illustration of this species.

SUKSDORFIA

1. Petals 2.5-4.0 mm long, white, spreading; calyces broadly companulate; discs present ..... *S. ranunculifolia*
1. Petals 6.0-9.0 mm long, violet (rarely white), erect; calyces turbinate; discs absent ..... *S. violacea*

***Suksdorfia ranunculifolia* (Hook.) Engl.**
Buttercup-leaved suksdorfia or saxifrage
Habitat/Range: Moist to dry mossy rocks in the montane and subalpine zones; infrequent in SE BC, disjunct on the mainland adjacent to the Queen Charlotte Islands; E to AB and S to MT, ID and N CA.

***Suksdorfia violacea* A. Gray**
Violet suksdorfia or saxifrage
Habitat/Range: Moist rocky ledges, crevices and shady sandy places in the montane and subalpine zones; infrequent in SE BC east of the Okanagan-Shuswap Lakes system; E to AB and S to NW MT, ID and WA.

TELLIMA

***Tellima grandiflora* (Pursh) Dougl. ex Lindl.**
Fringecup
Habitat/Range: Moist woods and streambanks in the lowland and montane zones; common in W and E BC, largely absent from C and N BC; N to the Aleutian Islands and S AK, E to AB and S to N ID and CA.

TIARELLA

***Tiarella trifoliata* L.** (*T. laciniata* Hook., *T. unifoliata* Hook.)
Cut-leaved foamflower (var. x *laciniata*), three-leaved foamflower (var. *trifoliata*) and one-leaved foamflower (var. *unifoliata*)
Habitat/Range: Moist woods in the lowland and montane zones and occasionally the subalpine zone; common throughout all but N BC; N to the Aleutian Islands and S AK, E to AB and S to MT, ID and CA.
Notes: A number of infraspecific taxa have been recognized. These taxa are widely sympatric but var. *trifoliata* generally occurs at lower elevations (up to 650 m), while var. *unifoliata* generally occurs above 650 m. Variety *laciniata* is a hybrid between the latter two which occurs frequently on Vancouver Island and sporadically on the mainland.
1. Leaves simple, shallowly to deeply 3-5 lobed ..... var. *unifoliata* (Hook.) Kurtz
1. Leaves trifoliolate, leaflets stalked.
    2. Leaflets lobed ..... var. *trifoliata*
    2. Leaflets deeply cleft, almost to the base ..... var. x *laciniata* (Hook.) Wheelock

TOLMIEA

***Tolmiea menziesii* (Pursh) T.& G.**
Piggy-back plant or youth-on-age
Habitat/Range: Moist woods and streambanks in the lowland and montane zones; common in coastal BC; N to AK and S to CA.

SCROPHULARIACEAE

1. Stem leaves mainly alternate (sometimes the lower ones opposite or whorled or mainly basal in *Limosella*); corollas spurred or spurless.
   2. Corollas spurred at the base.
      3. Leaves palmately veined and 5-9 lobed ..... *Cymbalaria*
      3. Leaves pinnately veined, entire or with a few obscure teeth.
         4. Leaves broadly ovate to sub-orbicular; plants prostrate ..... *Kickxia*
         4. Leaves linear to narrowly lanceolate; plants erect.
            5. Plants glandular-pubescent; flowers axillary ..... *Chaenorrhinum*
            5. Plants glabrous; flowers in terminal racemes ..... *Linaria*
   2. Corollas spurless.
      6. Leaves mainly basal, the cauline ones, if present, much reduced.
         7. Leaves all basal, entire; stamens 4 ..... *Limosella*
         7. Leaves both basal and cauline, toothed; stamens 2 ..... *Besseya*
      6. Leaves mainly cauline, these not greatly reduced from the basal leaves and gradually reduced upwards.
         8. Stamens 5; corollas rotate ..... *Verbascum*
         8. Stamens 4; corollas tubular to campanulate.
            9. Corollas barely 2-lipped; stigmas 2-lobed ..... *Digitalis*
            9. Corollas distinctly 2-lipped; stigmas wholly united.
               10. Anther-cells equal; calyx lobes usually 5, sometimes only 2 or 4; leaves often both basal and cauline ..... *Pedicularis*
               10. Anther-cells unequal, the larger attached by its middle and the smaller by its apex or the latter absent; calyx lobes 2-4; leaves wholly cauline.
                  11. Galeas distinctly surpassing the lower lips ..... *Castilleja*
                  11. Galeas only slightly, if at all, surpassing the lower lips ..... *Orthocarpus*

1. Stem leaves mainly opposite or whorled; corollas spurless.
   12. Calyces 4-lobed.
      13. Stamens 2; corollas barely 2-lipped ..... *Veronica*
      13. Stamens 4; corollas distinctly 2-lipped.
         14. Leaves palmately veined ..... *Euphrasia*

14. Leaves pinnately veined or pinnatifid.
    15. Leaves entire; seeds 2-4 ..... *Melampyrum*
    15. Leaves toothed; seeds numerous.
        16. Calyces inflated in fruit, strongly flattened; plants not glandular-hairy ..... *Rhinanthus*
        16. Calyces scarcely inflated in fruit, not markedly flattened; plants glandular-hairy ..... *Parentucellia*

12. Calyces 5-lobed.
    17. Filaments 5, one of these sterile, either elongate or a mere projecting knob or scale on the upper lip; stigmas wholly united.
        18. Sterile filaments elongate.
            19. Hypogynous disks well developed, nectariferous; filaments not nectariferous; seeds winged ..... *Nothochelone*
            19. Hypogynous disks reduced or none, not nectariferous; filaments of upper stamens nectariferous toward bases; seeds not winged ..... *Penstemon*
        18. Sterile filaments a knob or scale ..... *Scrophularia*
    17. Filaments 2 or 4; stigmas various.
        20. Anthers 2; sepals distinct.
            21. Lower filaments minute or absent ..... *Gratiola*
            21. Lower filaments developing as projected knobs on lower lip below sinuses ..... *Lindernia*
        20. Anthers 4; sepals various.
            22. Corollas yellow or pink-purple ..... *Mimulus*
            22. Corollas blue or blue and white.
                23. Lower leaves or at least some of them 3-foliately compound or deeply 3-parted ..... *Tonella*
                23. Lower leaves entire or shallowly toothed ..... *Collinsia*

BESSEYA

***Besseya wyomingensis* (A. Nels.) Rydb.**
Wyoming kitten-tails
Habitat/Range: Dry slopes in the alpine zone; rare in SE BC; E to SW SK and S to NE, SD, UT, CO and E ID.

CASTILLEJA[18]

1. Plants annuals, generally single-stemmed; leaves and bracts entire, linear-lanceolate; corollas yellowish ..... *C. exilis*
1. Plants perennials, generally 2- to several-stemmed; leaves and bracts entire or lobed, if bracts entire then broadly rounded; corollas various.

[18] Key adapted from Holmgren (1973a).

2. Galeas 3-12 (13) mm long (if greater than 10 mm then the inflorescences greenish or yellowish); bracts usually yellowish, sometimes pinkish, dark red or purplish.
   3. Lower corolla lips (2) 3-6.5 mm long, the lobes subpetaloid.
      4. Leaves entire; bracts rose-pink to violet-purple; plants of N BC ..... *C. raupii*
      4. Leaves divided above; bracts yellowish; plants of SC and SE BC.
         5. Calyx segments usually obtuse to rounded; herbage softly viscid-villous or rarely hispidulous ..... *C. cusickii*
         5. Calyx segments usually acute; herbage harshly pubescent or puberulent, sometimes glandular.
            6. Herbage villous or hispid, sometimes glandular; lower corolla lips 2.5-4 (5) mm long, not strongly pouched ..... *C. thompsonii*
            6. Herbage puberulent with uniformly recurved hairs; lower corolla lips 3-7.5 mm long, more or less strongly pouched ..... *C. pallescens*
   3. Lower corolla lips 1-3 (4) mm long, the lobes reduced to teeth.
      7. Inflorescences purple, crimson, rose, pink or white ..... *C. parviflora*
      7. Inflorescences yellow or greenish, occasionally reddish or purplish.
         8. Stems and leaves glandular-pubescent below the inflorescence ..... *C. levisecta*
         8. Stems and leaves not glandular-pubescent below the inflorescence (except rarely obscurely so in *C. occidentalis*).
            9. Bracts narrowly lanceolate, not concealing the flowers; inflorescences puberulent to hirsute with whitish hairs.
               10. Leaves entire, sometimes the uppermost with a pair of short lateral lobes; plants of N BC ..... *C. fulva*
               10. Leaves lobed with 1-2 pairs of slender lateral lobes; plants of SC and SE BC ..... *C. cervina*
            9. Bracts lanceolate to ovate, usually concealing the flowers; inflorescences glabrate to villose, often with yellowish hairs.
               11. Plants 0.6-1.6 (2.5) dm tall.
                  12. Leaves entire, sometimes the uppermost with a pair of short lateral lobes; plants of SE BC ..... *C. occidentalis*
                  12. Leaves lobed with 1-2 pairs of slender lobes, becoming entire below; plants of NE BC ..... *C. hyperborea*
               11. Plants 2.5-5 (8) dm tall.
                  13. Bracts with 1-2 pairs of long, slender lateral lobes; herbage usually scabrulous-puberulent ..... *C. lutescens*
                  13. Bracts entire or with 1 pair of shorter lateral lobes; herbage glabrous or glabrate to villous or viscid villous.
                     14. Lateral lobes of calyces 3-10 mm long; plants of NW BC and the Queen Charlotte Islands ..... *C. unalaschcensis*
                     14. Lateral lobes of calyces 1-4 mm long; plants of SE BC.

15. Stems few to several, clustered on a short woody caudex; corollas 20-27 (30) mm long ..... *C. sulphurea*

15. Stems usually solitary, rhizomatous; corollas 13-20 mm long ..... *C. gracillima*

2. Galeas (7) 10-20 mm long (if less than 10 mm then the inflorescences red or purplish); bracts usually red to purplish, rarely yellowish or whitish.

16. Leaves usually entire, rarely somewhat lobed above.

17. Inflorescences reddish (scarlet) or sometimes red-orange to yellowish; calyx segments linear to lanceolate, acuminate; plants usually more than 3 dm tall ..... *C. miniata*

17. Inflorescences purplish to crimson; calyx segments acute to obtuse; plants usually less than 3 dm tall.

18. Plants glabrate or only obscurely viscid-villose in the inflorescence; bracts usually with 1-2 pairs of short lateral lobes ..... *C. rhexifolia*

18. Plants strongly viscid-villose in the inflorescence; bracts entire or rarely somewhat lobed ..... *C. elmeri*

16. Leaves, at least the upper ones, with 1-3 pairs of linear, spreading lateral lobes.

19. Herbage villous with crisped hairs; stems 1-2 (3) dm tall; plants high subalpine and alpine, rare in the Cascade Mountains ..... *C. rupicola*

19. Herbage hispid with long multicellular hairs; stems 2-6 dm tall; plants lowland to montane, frequent throughout S BC ..... *C. hispida*

***Castilleja cervina* Greenm.**

Deer paintbrush

Habitat/Range: Dry slopes and open forests in the steppe vegetation and montane zones; frequent in SC and SE BC; S to N ID and NE WA.

***Castilleja cusickii* Greenm.**

Cusick's paintbrush

Habitat/Range: Mesic meadows in the montane zone; infrequent in SC and SE BC; E to SW AB and S to W WY, ID and NE OR.

***Castilleja elmeri* Fern.**

Elmer's paintbrush

Habitat/Range: Mesic meadows in the montane zone; locally frequent in the Cascade Mountains, SC BC; S to NW WA.

***Castilleja exilis* A. Nels.**

Annual paintbrush

Habitat/Range: Alkaline marshes and meadows in the steppe vegetation and lower montane zones; rare in SC and SE BC, known only from Mt. Sabine and Osoyoos Lake; S to WY, NM, AZ and NV.

***Castilleja fulva* Pennell**

Boreal paintbrush

Habitat/Range: Mesic, open forests in the montane zone; rare in NE BC; known only from Hudson Hope (type collection) and between Sifton Pass and Mt. Selwyn; N to SW YT.

Notes: Part of a poorly studied complex; also known from just N of the BC border in SW YT.

***Castilleja gracillima* Rydb.**
Slender paintbrush
Habitat/Range: Marshes and wet meadows in the montane zone; rare in SE BC; S to NW WY and ID.

Castilleja hispida* Benth. in Hook. var. *hispida
Harsh paintbrush
Habitat/Range: Mesic meadows and open forests in the lowland, steppe vegetation and montane zones; frequent in S BC; E to SW AB and S to NW MT, ID and OR.

***Castilleja hyperborea* Pennell** (*C. villosissima* Pennell)
Northern paintbrush or Indian-paintbrush
Habitat/Range: Moist to mesic open forest, meadows and rocky slopes from the montane to alpine zones; rare in NW BC; amphiberingian, N to AK, YT and NT; NE Siberia.

***Castilleja levisecta* Greenm.**
Golden paintbrush or Indian-paintbrush
Habitat/Range: Dry to mesic meadows in the lowland zone; rare on SE Vancouver Island; S to OR.

***Castilleja lutescens* (Greenm.) Rydb.**
Yellowish paintbrush
Habitat/Range: Dry slopes and open forests in the steppe vegetation and montane zones; rare in SC and SE BC; E to SW AB and S to MT, ID and NE OR.

***Castilleja miniata* Dougl. ex. Hook.** (*C. chrymactis* Pennell, *C. dixonii* Fern., *C. hyetophila* Pennell)
Scarlet or common red paintbrush
Habitat/Range: Tidal marshes, mesic to dry meadows and open slopes in the lowland and montane zones; common throughout BC north to 56°N, infrequent northward and on the Queen Charlotte Islands; N to SE AK, E to W ON and S to NM, AZ and CA.

***Castilleja occidentalis* Torr.**
Western paintbrush
Habitat/Range: Mesic to dry meadows in the subalpine and alpine zones; infrequent in SE BC; E to SW AB and S to CO and UT.

***Castilleja pallescens* (A. Gray) Greenm.**
Palish paintbrush or Indian-paintbrush
Habitat/Range: Dry sites in the steppe vegetation zone; rare in SC and SE BC; E to SW AB and S to WY and ID.

***Castilleja parviflora* Bong.** (*C. henryae* Pennell, *C. oreopola* Greenm., *C. parviflora* var. *albida* [Pennell] Ownbey, *C. parviflora* var. *olympica* [G.N. Jones] Ownbey)
Small-flowered paintbrush
Habitat/Range: Moist to mesic meadows and rock outcrops in the subalpine and alpine zones; frequent throughout BC; N to YT, E to SW AB and S to OR.

***Castilleja raupii* Pennell**
Raup's paintbrush or Indian-paintbrush
Habitat/Range: Swamps, streamsides and wet meadows in the montane zone; infrequent in extreme NE BC; N to AK, YT and NT and E to W PQ.

***Castilleja rhexifolia* Rydb.**
Alpine or rhexia-leaved paintbrush
Habitat/Range: Mesic meadows and rocky slopes in the subalpine and alpine zones; infrequent in S BC north to 53°N; E to SW AB and S to CO, UT, NM and NE OR.

***Castilleja rupicola* Piper**
Cliff paintbrush
Habitat/Range: Dry to mesic cliffs and rocky slopes from the upper montane to alpine zones; rare in the Cascade Mountains; S to OR.

***Castilleja sulphurea* Rydb.**
Sulphur paintbrush
Habitat/Range: Moist meadows in the subalpine and alpine zones; locally frequent in SE BC; E to AB and S to SD, CO, UT and NM.

***Castilleja thompsonii* Pennell**
Thompson's paintbrush
Habitat/Range: Dry slopes in the steppe vegetation and montane zones; locally frequent in SC BC, rare in SE BC; S to C WA.

***Castilleja unalaschcensis* (Cham. & Schlecht.) Malte**
Unalaska paintbrush or Indian-paintbrush
Habitat/Range: Moist to mesic meadows in the montane and subalpine zones; common in NW BC north of 53°N and the Queen Charlotte Islands; N to AK and YT.

CHAENORRHINUM

***Chaenorrhinum minus* (L.) Lange in Willk. & Lange**
Common dwarf snapdragon
Habitat/Range: Roadsides, railways and waste places; rare in S BC, also known from Mt. Robson Provincial Park; introduced from Eurasia.

COLLINSIA[19]

1. Corollas 4-7 (10) mm long, the tubes bent at an oblique angle on the calyx; plants widespread ..... *C. parviflora*

1. Corollas 9-17 mm long, the tubes bent at about right angles to the calyx; plants occurring in and W of the Coast-Cascade Mountains ..... *C. grandiflora*

***Collinsia grandiflora* Dougl. ex Lindl.**
Large-flowered blue-eyed Mary
Habitat/Range: Moist to dry sites in the lowland and montane zones; frequent in S BC in and west of the Coast-Cascade Mountains, infrequent N along the coast to 54°N; S to CA.

***Collinsia parviflora* Dougl. ex Lindl.**
Small-flowered blue-eyed Mary
Habitat/Range: Moist sites in the lowland and montane zones; common throughout BC except NE; N to AK and S YT, E to ON and S to VT, MI, SD, CO and CA.

[19] Key adapted from Hitchcock *et al.* (1959).

CYMBALARIA

***Cymbalaria muralis* Gaertn., Mey. & Scherb.** (*Linaria cymbalaria* [L.] P. Mill.)
Ivy-leaved toadflax
Habitat/Range: Waste places; infrequent in the Gulf Islands and adjacent lower mainland; introduced from Eurasia.

DIGITALIS

***Digitalis purpurea* L.**
Common foxglove
Habitat/Range: Roadsides, fields and disturbed sites; common in SW BC, rare in the Queen Charlotte Islands; introduced from Europe.

EUPHRASIA

1. Teeth of floral bracts obtuse to acute; leaves usually more or less pubescent; rare in wetlands of N BC . . . . . *E. arctica*

1. Teeth of floral bracts subulate or bristle-tipped; leaves usually glabrous or nearly so; frequent on dry disturbed sites in SW BC . . . . . *E. nemorosa*

Euphrasia arctica* Lange ex Rostrup var. *disjuncta* (Fern. & Wieg.) Cronq. in Hitchcock *et al.
Arctic eyebright
Habitat/Range: Wet sites and bogs in the montane zone; rare in N BC; N to AK, YT and NT, E to NF and Greenland and S to ME, MI, MN and MT.

***Euphrasia nemorosa* (Pers.) Wallr.** (*E. americana* Wettst., *E. officinalis* auct. non L. or Townsend)
Eastern eyebright
Habitat/Range: Fields, roadsides and waste places; frequent in SW BC; introduced from Europe.

GRATIOLA

1. Pedicels lacking bracteoles below the calyx, the sepals evidently 5; plants glabrous to obscurely-glandular above . . . . . *G. ebracteata*

1. Pedicels bearing a pair of bracteoles below the calyx, the sepals thus apparently 7; plants more or less glandular-viscid . . . . . *G. neglecta*

***Gratiola ebracteata* Benth. in DC.**
Bractless hedge-hyssop
Habitat/Range: Wet sites in the lowland zone; frequent in SW BC; S to W MT and CA.

***Gratiola neglecta* Torr.**
Common American hedge-hyssop
Habitat/Range: Wet sites in the lowland, steppe vegetation and lower montane zones; rare in S BC; E to NS and S to GA, TX and CA.

KICKXIA

Kickxia elatine **(L.) Dumort.**
Sharp-leaved fluellen
Habitat/Range: Roadsides and waste places; rare on S Vancouver Island; introduced from Europe.

LIMOSELLA

Limosella aquatica **L.**
Water mudwort
Habitat/Range: Wet sites and shallow water in the lowland, steppe vegetation and montane zones; infrequent throughout BC south of 57°N, absent from the Queen Charlotte Islands; circumpolar, N to AK, YT and NT, E to Labr. and NF and S to MN, NM and CA; Iceland, Eurasia.

LINARIA

1. Corollas yellow.
   2. Leaves linear, 1-5 mm wide, not clasping ..... *L. vulgaris*
   2. Leaves ovate or lance-ovate, 10-20 mm wide, clasping ..... *L. genistifolia*
1. Corollas blue, violet or purple.
   3. Plants perennials, glabrous and glaucous in the inflorescence ..... *L. purpurea*
   3. Plants annuals or biennials, more or less viscid or glandular in the inflorescence ..... *L. canadensis*

Linaria canadensis **(L.) Dum.-Cours. var.** ***texana*** **(Scheele) Pennell** (*L. texana* Scheele)
Blue toadflax
Habitat/Range: Moist, sandy sites in the lowland zone; frequent on S Vancouver Island, the Gulf Islands and adjacent mainland; E to SK and S to FL, TX, CA and MX.

Linaria genistifolia **(L.) P. Mill. ssp.** ***dalmatica*** **(L.) Maire & Petitmengin** (*L. dalmatica* [L.] P. Mill.)
Dalmatian toadflax
Habitat/Range: Roadsides and waste places; frequent in BC south of 55°N, except absent from the Queen Charlotte Islands; introduced from Europe.

Linaria purpurea **(L.) P. Mill.**
Purple toadflax
Habitat/Range: Roadsides and waste places; infrequent garden-escape in SW BC; introduced from Europe.

Linaria vulgaris **P. Mill.**
Butter-and-eggs, or common toadflax
Habitat/Range: Fields, roadsides and waste places; common in BC south of 57°N, except absent from the Queen Charlotte Islands; introduced from Eurasia.

LINDERNIA

***Lindernia anagallidea* (Michx.) Pennell**
False-pimpernel
Habitat/Range: Wet, sandy or muddy sites in the lowland or steppe vegetation zones; rare in SC BC and the lower Fraser Valley; E to ON and S to NH, NY, FL, TX, ND and MX; S. America.

MELAMPYRUM

Melampyrum lineare* Desr. in Lam. var. *lineare
Cow-wheat
Habitat/Range: Wet to mesic sites in the lowland and montane zones; common in BC south of 57°N, except absent on the Queen Charlotte Islands; E to NF and S to GA, TN, MN, MT, ID and CA.

MIMULUS

1. Corollas reddish to light purple or pink-purple.
   2. Stems less than 1.5 dm tall; leaves 1-2 cm long; corollas reddish to light purple; plants rare in SC BC ..... *M. breweri*
   2. Stems more than 3 dm tall; leaves 3-10 cm long; corollas pink-purple; plants common in S BC ..... *M. lewisii*
1. Corollas yellow, often with reddish, purplish or brownish markings.
   3. Plants perennials from rhizomes or stolons.
      4. Upper calyx teeth larger than the others.
         5. Plants rhizomatous and often stoloniferous as well; flowers mainly 1-5, the corollas 2-4 cm long ..... *M. tilingii*
         5. Plants stoloniferous, rarely rhizomatous; flowers usually 5 or more; the corollas usually less than 2 cm long ..... *M. guttatus*
      4. Upper calyx teeth not evidently larger than the others.
         6. Herbage somewhat hirsute, scarcely viscid; calyx tubes villous along the 5 ribs; plants rare on S Vancouver Island ..... *M. dentatus*
         6. Herbage viscid-villous, somewhat slimy; calyx tubes viscid-villous all over; plants widespread in S BC ..... *M. moschatus*
   3. Plants annuals, lacking rhizomes or stolons.
      7. Corollas strongly bilabitate, the lower lip evidently longer.
         8. Calyx teeth dissimilar in size, the upper the largest; plants widespread ..... *M. guttatus*
         8. Calyx teeth similar in size; plants of SW BC ..... *M. alsinoides*
      7. Corollas only slightly bilabitate, the lower lip only slightly longer than the upper.
         9. Leaves abruptly contracted to the petioles ..... *M. floribundus*
         9. Leaves tapering to the short-petioled or sessile base ..... *M. breviflorus*

***Mimulus alsinoides* Dougl. ex Benth.**
Chickweed monkey-flower
Habitat/Range: Moist sites in the lowland and lower montane zones; infrequent on S Vancouver Island, the Gulf Islands and lower Fraser River drainage; S to N CA.

***Mimulus breviflorus* Piper**
Short-flowered monkey-flower
Habitat/Range: Moist sites in the steppe vegetation and lower montane zones; infrequent in SC and SE BC; S to ID and N CA.

***Mimulus breweri* (Greene) Rydb.**
Brewer's monkey-flower
Habitat/Range: Moist to dry sites in the lower montane zone; rare in SE BC, known only from the Rossland and Revelstoke areas; S to WY and CA.

***Mimulus dentatus* Nutt. ex Benth. in DC.**
Tooth-leaved monkey-flower
Habitat/Range: Moist forests in the lowland and lower montane zones; rare on S Vancouver Island; S to N CA.

***Mimulus floribundus* Lindl.**
Purple-stemmed monkey-flower
Habitat/Range: Moist sites in the steppe vegetation and lower montane zones; infrequent in SC BC; S to NM and CA.

***Mimulus guttatus* Fisch. ex DC.** (*M. guttatus* ssp. *haidensis* Calder & Taylor)
Yellow monkey-flower
Habitat/Range: Wet sites in the lowland, steppe vegetation and montane zones; common throughout BC; N to AK and S YT, E to PQ and S to MI, IL, TX, AZ and MX.
Notes: The ssp. *haidensis* has been recognized in the Queen Charlotte Islands but this may not be much different from some of the numerous other forms previously named in this complex (see Hitchcock *et al.* 1959).

***Mimulus lewisii* Pursh**
Pink or Lewis' monkey-flower
Habitat/Range: Wet to moist sites in the montane and subalpine zones; common in BC south of 55°N, except absent on the Queen Charlotte Islands; N to SE AK, E to W AB and S to WY, UT and CA.

***Mimulus moschatus* Dougl. ex Lindl.**
Musk-flower
Habitat/Range: Moist sites in the lowland, steppe vegetation and montane zones; common in BC south of 53°N; S to CO, UT and CA.

***Mimulus tilingii* Regel**
Mountain or large mountain monkey-flower
Habitat/Range: Wet sites in the montane and subalpine zones; frequent in BC south of 52°N, rare northward to 55°N, disjunct at Liard-Dease River junction, absent from the Queen Charlotte Islands; E to SW AB and S to NM, MX and CA.
Notes: Two varieties are recognized in BC.

1. Leaves usually less than 1 cm long; plants freely branched, the branches more or less stoloniform ..... var. *caespitosus* (Greene) Grant
1. Leaves usually more than 1 cm long; plants less branched, or the branches not stoloniform ..... var. *tilingii*

NOTHOCHELONE

***Nothochelone nemorosa* (Dougl.) Straw** (*Penstemon nemorosus* [Dougl.] Trautv.)
Woodland penstemon
Habitat/Range: Moist forests and rocky slopes in the lowland and montane zones; rare on S Vancouver Island and the adjacent mainland; S to NW CA.

ORTHOCARPUS

1. Anthers 1-celled; leaves pinnately divided to near the midrib into linear or filiform segments.
   2. Stamens exserted from the galea; corollas 4-6 mm long ..... *O. pusillus*
   2. Stamens not exserted from the galea; corollas 12-22 mm long ..... *O. faucibarbatus*
1. Anthers 2-celled; leaves not pinnately divided.
   3. Lower lips of corollas more or less trisaccate.
      4. Bracts green throughout; lower lips of corollas with inconspicuous teeth ..... *O. hispidus*
      4. Bracts (or some of them) tipped with white, yellow, or purple; lower lips of corollas with evident teeth.
         5. Corollas linear, the lower lips scarcely expanded; slender plants of mesic meadows in the lowland zone ..... *O. attenuatus*
         5. Corollas clavate, the lower lips expanded; stout plants of salt marshes or saline sites in the lowland zone ..... *O. castillejoides*
   3. Lower lips of corollas saccate or nearly so.
      6. Bracts and calyces glandular-pubescent; upper leaves passing gradually into the bracts.
         7. Corollas yellow, the lower lip with definite short teeth; calyces subequally 4-lobed; frequent in SC and SE BC ..... *O. luteus*
         7. Corollas pink-purple, the lower lip lacking teeth; calyces 2-cleft with bifid segments; rare in SW BC ..... *O. bracteosus*
      6. Bracts and calyces scarcely or not at all glandular; upper leaves passing abruptly into the distinctive bracts.
         8. Leaves entire throughout; plants rare on S Vancouver Island ..... *O. imbricatus*
         8. Leaves deeply cleft, at least above; plants rare in SC and SE BC ..... *O. tenuifolius*

***Orthocarpus attenuatus* A. Gray**
Narrow-leaved owl-clover
Habitat/Range: Mesic meadows and fields in the lowland zone; locally frequent on S Vancouver Island and the Gulf Islands; S to CA.

***Orthocarpus bracteosus* Benth.**
Rosy owl-clover
Habitat/Range: Mesic meadows and fields in the lowland zone; rare, known only from Trial Island; S to N CA.
Notes: This species was formerly known from a number of locations in the Victoria area but has not been collected there since 1954.

***Orthocarpus castillejoides* Benth.**
Paintbrush owl-clover
Habitat/Range: Salt marshes or saline sites in the lowland zone; rare on S Vancouver Island; S to CA.

***Orthocarpus faucibarbatus* A. Gray ssp. *albidus* Keck**
Bearded owl-clover
Habitat/Range: Mesic meadows in the lowland zone; rare, known only from several locations in the Victoria area; disjunct, S OR to CA.
Notes: This disjunct species occurs 425 km N of the nearest population in Lane Co., OR. Most authors (e.g., Keck 1927, Taylor and MacBryde 1977, Scoggan 1979) have treated this as an introduced species although there is no evidence of this at the collection sites.

***Orthocarpus hispidus* Benth.**
Hairy owl-clover
Habitat/Range: Moist meadows and vernal pools in the lowland and steppe vegetation zones; rare on S Vancouver Island and SC BC; S to ID, MT and CA.

***Orthocarpus imbricatus* Torr. ex S. Wats.**
Mountain owl-clover
Habitat/Range: Dry scree slopes in the montane zone; rare on S Vancouver Island, known only from Little Mt. Hooper; disjunct, NW WA and C OR to N CA.

***Orthocarpus luteus* Nutt.**
Yellow owl-clover
Habitat/Range: Dry sites in the steppe vegetation and montane zones; frequent in BC east of the Coast-Cascade Mountains and S of 56°N; E to MB and S to MN, NE, NM and CA.

***Orthocarpus pusillus* Benth.**
Dwarf owl-clover
Habitat/Range: Moist sites in the lowland zone; locally frequent on S Vancouver Island and the Gulf Islands, rare on the adjacent mainland; S to CA.

***Orthocarpus tenuifolius* (Pursh) Benth.**
Thin-leaved owl-clover
Habitat/Range: Moist to dry sites in the steppe vegetation and montane zones; infrequent in SC and SE BC; S to ID, MT and OR.

PARENTUCELLIA

***Parentucellia viscosa* (L.) Car. in Parl & Car.**
Yellow parentucellia
Habitat/Range: Moist fields and disturbed sites; frequent on S Vancouver Island, the Gulf Islands and adjacent lower mainland; introduced from Europe.

PEDICULARIS

1. Cauline leaves verticillate ..... *P. verticillata*
1. Cauline leaves alternate or lacking.
   2. Leaves merely toothed ..... *P. racemosa*
   2. Leaves pinnately lobed to twice pinnatifid.

3. Stems freely branched throughout, or with at least some axillary branches.
   4. Galeas with pair of long, slender apical teeth, 0.5-2 mm long; corollas predominately yellow (sometimes flushed with purple or pink, rarely wholly purple or pink) ..... *P. labradorica*
   4. Galeas with pair of short, blunt teeth, less than 0.5 mm long; corollas purple or pink ..... *P. parviflora*
3. Stems simple.
   5. Plants leafy stemmed; basal leaves, if present, not markedly larger than the cauline leaves.
      6. Plants usually more than 20 cm tall; leaves pinnatifid, blades 5-15 cm long .... *P. bracteosa*
      6. Plants usually 5-15 cm tall; leaves pinnatilobed, blades 2-4 cm long ..... *P. langsdorfii*
   5. Plants with leaves mostly basal; cauline leaves few and reduced.
      7. Galeas with distinct beaks at least 2 mm long.
         8. Beaks straight, 2-4 mm long ..... *P. ornithorhyncha*
         8. Beaks strongly curved, usually more than 4 mm long.
            9. Beaks curved down, equal to or slightly longer than the well-developed lower lips ..... *P. contorta*
            9. Beaks curved upward, much longer than the poorly-developed lower lips ..... *P. groenlandica*
      7. Galeas beakless, or with inconspicuous points less than 1 mm long.
         10. Corollas yellow or creamy-white, sometimes flushed with pink or purple, especially toward tip of galeas.
            11. Flowers usually fewer than 10/inflorescence, in nearly flat-topped heads; flowers 2.5-3.5 cm long; galeas longer than corolla tubes ..... *P. capitata*
            11. Flowers usually more than 10/inflorescence, in elongated racemes; flowers 2-2.5 cm long; galeas about equal to or shorter than the corolla tubes ..... *P. oederi*
         10. Corollas pink to purple.
            12. Cauline leaves numerous and not reduced upwards; leaves pinnatilobed ..... *P. langsdorfii*
            12. Cauline leaves reduced upwards, few and small or none; leaves pinnatifid.
               13. Galeas with teeth at tips; inflorescences well separated from basal leaves; bracts usually sparsely long-hairy only on margins ..... *P. sudetica*
               13. Galeas lacking teeth at tips; inflorescences usually not separated above tops of basal leaves; bracts densely long-hairy throughout ..... *P. lanata*

Pedicularis bracteosa **Benth. in Hook.**

Bracted lousewort

Habitat/Range: Moist meadows and open forests in the montane to alpine zones; common throughout BC south of 56°N; E to AB and S to CO and N CA.

Notes: Two varieties occur in BC.

1. Free tips of the lateral sepals very slender, filiform, glandular; the common variety ..... var. *bracteosa*
1. Free tips of the lateral sepals lanceolate to triangular, sparsely or not at all glandular; infrequent in C and S BC ..... *var. latifolia* (Pennell) Cronq. in Hitchc. *et al.*

***Pedicularis capitata* Adams**
Capitate lousewort
Habitat/Range: Moist rocky or grassy slopes and meadows in the subalpine to alpine zones; frequent in N BC north of 56°N; N to AK, YT and NT and E to AB; Greenland, Asia.

***Pedicularis contorta* Benth. in Hook.**
Coil-beaked lousewort
Habitat/Range: Dry rocky slopes and forests in the montane to alpine zones; rare in SE BC; E to SW AB and S to WY and CA.

***Pedicularis groenlandica* Retz.**
Elephant's-head lousewort
Habitat/Range: Moist meadows in the montane to subalpine zones; frequent throughout S BC except along coast, infrequent northward; N to S AK, YT and NT; E to NF and S to NM and CA; Greenland.

***Pedicularis laboradorica* Wirsing**
Labrador lousewort
Habitat/Range: Cool, moist, rocky or peaty slopes and forests in the montane zone; frequent in N BC south to approximately 53°N; circumpolar, N to AK, YT and NT and E to NF; Greenland, Eurasia.

Pedicularis lanata* Cham. & Schlecht. ssp. *lanata (*P. kanei* Durand)
Wooly lousewort
Habitat/Range: Mesic to dry rocky slopes in the alpine zone; infrequent in N BC south to approximately 54°N; circumpolar, N to AK, YT and NT and E to N PQ; Greenland, Eurasia.

***Pedicularis langsdorfii* Fisch. ex Steven ssp. *arctica* (R. Br.) Pennell**
Langsdorf's lousewort
Habitat/Range: Rocky meadows and slopes in the alpine zone; frequent in N BC south to approximately 52°N; circumpolar, N to AK, YT and NT and E to SW AB; Greenland, N Asia.

***Pedicularis oederi* Vahl in Hornem.**
Oeder's lousewort
Habitat/Range: Rocky meadows and slopes in the alpine zone; rare in N BC south to approximately 54°N; circumboreal, N to AK, YT and NT; E to AB and S to WY; Eurasia.

***Pedicularis ornithorhyncha* Benth. in Hook.**
Bird's-beak lousewort
Habitat/Range: Meadows and open slopes in the subalpine and alpine zones; frequent in, and W of, the Coast-Cascade Mountains, rare in C and SC BC; N to S AK and S to W WA.

Pedicularis parviflora* Sm. in Rees. ssp. *parviflora (*P. macrodonta* Richards., *P. pennellii* Hult. ssp. *insularis* Calder & Taylor)
Small-flowered lousewort
Habitat/Range: Bogs and wet meadows in the montane and subalpine zones; rare in N BC south to approximately 52°N; circumboreal, N to AK, YT and NT; E to PQ and S to OR; N Asia.
Notes: The relationships between this species and *P. macrodonta* and the entity found on the Queen Charlotte Islands that has been named *P. pennellii* ssp. *insularis* needs further clarification. It seems best to consider them synonymous with *P. parviflora* ssp. *parviflora*.

***Pedicularis racemosa* Dougl. ex Hook.**
Sickletop lousewort
Habitat/Range: Moist to dry coniferous forests and meadows in the montane to alpine zones; common in S BC, N to approximately 53°N; E to AB and S to NM and CA.

***Pedicularis sudetica* Willd. ssp. *interior* (Hult.) Hult.**
Sudeten lousewort
Habitat/Range: Moist, often calcareous meadows and rocky slopes in the subalpine and alpine zones; frequent in N BC; circumpolar, S to approximately 52°N; N to AK, YT and NT and E to PQ; Eurasia.

***Pedicularis verticillata* L.**
Whorled lousewort
Habitat/Range: Meadows and rocky slopes in the montane to alpine zones; rare in N BC and the Queen Charlotte Islands; N to AK, YT and NT.

PENSTEMON[20]

1. Anthers densely long-woolly with tangled hairs.
   2. Plants 3-8 dm tall, herbaceous to the base; leaves all cauline, the lower ones reduced, the better developed leaves often more than 6 cm long or more than 2.5 cm wide, or both ..... *P. lyallii*
   2. Plants 0.5-4 dm tall, distinctly woody at base; leaves basal or near-basal as well as cauline, not over 6 cm long and 2.5 cm wide.
      3. Plants ascending or erect, branched above the ground surface, the leaf clusters elevated above ground, not forming mats; plants usually well over 1.5 dm tall; leaf blades 2-10 times as long as wide ..... *P. fruticosus*
      3. Plants forming dense mats on surface of ground; plants usually less than 1.5 dm tall; leaf blades 1-2.5 times as long as wide.
         4. Leaves of erect flowering stems well developed, usually more than 1 cm long; plants from SE BC ..... *P. ellipticus*
         4. Leaves of erect flowering stems bract-like, less than 1 cm long; plants from Cascade Mountains and westward ..... *P. davidsonii*
1. Anthers glabrous or with inconspicuous short hairs.
   5. Pollen sacs opening along their confluent apices, horseshoe-shaped.
      6. Plants glandular; leaves deeply serrate to laciniate-pinnatifid; corollas 22-35 mm long ..... *P. richardsonii*
      6. Plants not glandular; leaves entire to serrate; corollas 15-25 mm long.
         7. Staminodes glabrous; leaves entire, less than 10 mm wide ..... *P. cusickii*
         7. Staminodes bearded; leaves serrate or rarely subentire, usually well over 10 mm wide ..... *P. serrulatus*

[20] Key adapted from Hitchcock *et al.* (1959).

5. Pollen sacs opening throughout their length, becoming divaricate after dehiscence, not horseshoe-shaped.

8. Plants not glandular; leaves entire or subentire.

9. Capsules 7-12 mm long; mouth of corollas glabrous; caudices compactly branched, not creeping ..... *P. nitidus*

9. Capsules 3-7 mm long; mouth of corollas bearded; caudices creeping along surface of ground.

10. Corollas blue to purple (white forms rarely); bracts of the inflorescences entire, not scarious ..... *P. procerus*

10. Corollas yellowish-white; bracts of the inflorescences scarious and erose ..... *P. confertus*

8. Plants glandular; leaves often toothed.

11. Ovaries and capsules glandular-puberulent near the summit; calyces 7-13 mm long; corollas 20-40 mm long ..... *P. eriantherus*

11. Ovaries and capsules glabrous; calyces less than 7 mm long; corollas 12-25 mm long.

12. Stems arising singly or few together from short, subterranean caudices ..... *P. gracilis*

12. Stems arising from above-ground, branched caudices.

13. Leaves entire or nearly so.

14. Calyces 9-10 mm long; corollas 18-25 mm long; capsules 9-10 mm long; staminodes bearded for more than half their length; plants of N BC ..... *P. gormanii*

14. Calyces 3-6 mm long; corollas less than 20 mm long; capsules 5-7 mm long; staminodes bearded only at expanded tips; plants of SE BC ..... *P. albertinus*

13. Leaves generally toothed (often remotely so in *P. albertinus*).

15. Corollas 11-16 mm long; plants of C BC ..... *P. pruinosus*

15. Corollas 15-23 mm long; plants of SE or SW BC.

16. Plants 4-10 dm tall; leaves sharply toothed, the larger ones more than 1.5 cm wide; plants from west of the Cascade Mtns ..... *P. ovatus*

16. Plants usually less than 4 dm tall; leaves irregularly and obscurely toothed, the larger ones 0.5-2 cm wide; plants from SE BC ..... *P. albertinus*

Penstemon albertinus **Greene**

Alberta penstemon

Habitat/Range: Dry gravelly slopes and rocky ridges in the montane to alpine zones; rare in SE BC; E to SW AB and S to W MT and C ID.

Penstemon confertus **Dougl. in Lindl.**

Yellow penstemon

Habitat/Range: Moist meadows and open forests in the steppe vegetation and montane zones; frequent in S BC east of the Coast-Cascade Mountains; E to SW AB and S to MT and OR.

***Penstemon cusickii* A. Gray**
Cusick's penstemon
Habitat/Range: Dry open slopes in the steppe vegetation and lower montane zones; rare in SE BC, known only from Charbonneau Creek; S to ID and OR.

***Penstemon davidsonii* Greene**
Davidson's penstemon
Habitat/Range: Rock outcrops and talus slopes in the montane to alpine zones; frequent in BC in and west of the Coast-Cascade Mountains; S to CA.
Notes: Two sympatric, poorly-defined (at least in BC) varieties occur in BC.
1. Leaves entire, tending to be broadest above the middle; infrequent ..... var. *davidsonii*
1. Leaves serrulate, tending to be broadest near or below the middle; the common variety ..... var. *menziesii* (Keck) Cronq. in Hitchc. *et al.*

***Penstemon ellipticus* Coult. & Fisch.**
Oval or elliptic-leaved penstemon
Habitat/Range: Rocky slopes in the subalpine to alpine zones; infrequent in SE BC; E to SW AB and S to NW MT and N ID.

Penstemon eriantherus* Pursh var. *eriantherus
Fuzzy-tongued penstemon
Habitat/Range: Dry open slopes in the steppe vegetation and montane zones; infrequent in SE BC; E to AB and S to ND, NE, CO and OR.

***Penstemon fruticosus* (Pursh) Greene**
Shrubby penstemon
Habitat/Range: Rocky hillsides and open forests in the steppe vegetation to alpine zones; common in S BC east of the Coast-Cascade Mountains; S to MT, WY and OR.
Notes: Two sympatric varieties occur in BC.
1. Leaves entire or slightly serrulate, relatively broad, 2-7 times as long as wide; corollas 3-4 cm long ..... var. *fruticosus*
1. Leaves more or less toothed or sometimes entire, relatively narrow, 6-10 times as long as wide; corollas 3.5-5 cm long ..... var. *scouleri* (Lindl.) Cronq. in Hitchc. *et al.*

***Penstemon gormanii* Greene**
Gorman's penstemon
Habitat/Range: Dry rocky slopes in the montane zone; rare in N BC; N to AK, YT and NT.

***Penstemon gracilis* Nutt.**
Slender penstemon
Habitat/Range: Moist, sandy or rocky grasslands; rare in NE BC, known only from the Peace River District; E to ON and S to WI, IA and NM.

***Penstemon lyallii* (A. Gray) A. Gray**
Lyall's penstemon
Habitat/Range: Rocky slopes, gravel bars and shale slides in the montane zone; rare in extreme SE BC, known only from the Crowsnest Pass area; E to SW AB and S to N ID and OR.

***Penstemon nitidus* Dougl. ex Benth. in DC.**
Shining penstemon
Habitat/Range: Dry slopes and roadside banks in the montane zone; rare in extreme SE BC; E to MB and S to ND, WY and ID.

***Penstemon ovatus* Dougl. ex Hook.**
Broad-leaved penstemon
Habitat/Range: Open forests and rocky outcrops in the lowland and montane zones; infrequent on S Vancouver Island and the Lower Fraser Valley; S to N OR.

***Penstemon procerus* Dougl. ex Graham**
Small-flowered or slender blue penstemon
Habitat/Range: Open meadows, rocky slopes and open forests in the montane to alpine zones; common throughout BC, except the coast; N to AK and YT, E to SK and S to CO and CA.
Notes: Two varieties occur in BC.

1. Basal rosettes poorly developed; plants mostly 2-4 dm tall, usually with more than one verticillaster of flowers per stem; throughout range of the species ..... var. *procerus*
1. Basal rosettes well developed; plants mostly 0.5-1.5 dm tall, usually with only one verticillaster of flowers per stem; SC BC, largely in the Cascade Mtns ..... var. *tolmiei* (Hook.) Cronq. in Hitchc. *et al.*

***Penstemon pruinosus* Dougl. ex Lindl.**
Chelan penstemon
Habitat/Range: Dry sagebrush hillsides, open forests and slopes in the steppe vegetation and montane zones; infrequent in S BC east of the Coast-Cascade Mountains; S to N WA.

Penstemon richardsonii* Dougl. ex Lindl. var. *richardsonii
Richardson's penstemon
Habitat/Range: Dry rocky hillsides in the steppe vegetation zone; rare in SC BC; S to OR.

***Penstemon serrulatus* Menzies ex Sm. in Rees**
Coast penstemon
Habitat/Range: Moist streambanks in the lowland to montane zones; frequent in W BC north to approximately 55°N; S to OR.

RHINANTHUS

***Rhinanthus minor* L.** (*R. borealis* [Stern.] Chab. ssp. *kyrolliae* [Chab.] Pennell, *R. crista-galli* L., *R. stenophyllus* [Schur] Schinz & Thell.)
Yellow rattle
Habitat/Range: Mesic meadows and disturbed sites in the lowland, steppe vegetation and montane zones; frequent in BC south of 56°N, rare northward and on the Queen Charlotte Islands; circumboreal, N to AK, YT and NT, E to Labr. and NF and S to NY, CO and NW OR; Greenland, Eurasia.
Notes: A confused species complex but it appears that in our region only one entity is present.

SCROPHULARIA[21]

1. Sterile stamens purple or brown, mostly 0.5-1 mm wide and slightly longer than wide; corollas dark maroon, at least on the upper lip ..... *S. californica*
1. Sterile stamens yellow-green, generally 1-1.8 mm wide and slightly wider than long; corollas yellowish-green with a light maroon overcast, especially above ..... *S. lanceolata*

[21] Key adapted from Hitchcock *et al.* (1973).

***Scrophularia californica* Cham. & Schlecht. var. *oregana* (Pennell) Bolvin** (*S. californica* var. *oregana* [Pennell] Cronq., *S. oregana* Pennell)
California figwort
Habitat/Range: Moist sites in the lowland zone; locally frequent on Vancouver Island and the Gulf Islands; S to NV and CA.
Notes: Easily confused with *S. lanceolata*.

***Scrophularia lanceolata* Pursh**
Lance-leaved figwort
Habitat/Range: Moist to mesic sites in the lowland and steppe vegetation zones; rare on Vancouver Island and SC BC; E to NB and NS and S to SC, OK, NM and CA.

TONELLA

***Tonella tenella* (Benth.) Heller**
Small-flowered tonella
Habitat/Range: Dry, rocky slopes in the lowland zone; rare in SW BC, known only from Saltspring Island; disjunct, N OR to CA.

VERBASCUM

1. Plants more or less densely stipitate-glandular upward, essentially glabrous below; leaves green ..... *V. blattaria*

1. Plants tomentose throughout with branched, eglandular hairs; leaves greyish.

   2. Racemes loose, often branching at the base; leaves sessile, not decurrent on the stem or only slightly so; plants loosely tomentose ..... *V. phlomoides*

   2. Racemes dense, simple; leaves petiolate, at least below, decurrent on the stem, usually as far as the next leaf below; plants densely tomentose ..... *V. thapsus*

***Verbascum blattaria* L.**
Moth mullein
Habitat/Range: Roadside, fields and waste places; rare in SW and SC BC; introduced from Eurasia.

***Verbascum phlomoides* L.**
Woolly or clasping mullein
Habitat/Range: Roadsides, fields and waste places; rare in the Gulf Islands and adjacent mainland; introduced from Eurasia.

***Verbascum thapsus* L.**
Great or common mullein
Habitat/Range: Roadsides, fields and waste places; common in S BC north to 53°N; introduced from Eurasia.

VERONICA

1. Main stems terminating in an inflorescence; upper bract-leaves alternate.

   2. Plants rhizomatous perennials.

3. Styles 6-10 mm long; filaments 4-8 mm long; leaves entire, glabrous ..... *V. cusickii*

3. Styles 1-4 mm long; filaments 1-4 mm long; leaves entire or toothed, glabrous or hairy.

4. Capsules higher than wide; stems simple, erect or decumbent at base, villous-hirsute with spreading hairs; filaments 1-1.5 mm long ..... *V. wormskjoldii*

4. Capsules wider than high; stems tending to creep at base, finely and closely puberulent; filaments 2-4 mm long ..... *V. serpyllifolia*

2. Plants fibrous-rooted annuals.

5. Pedicels short, 1-2 mm long, shorter than sepals; stems erect.

6. Leaves, at least middle ones, deeply cleft into linear lobes ..... *V. verna*

6. Leaves entire or toothed, but not lobed.

7. Principal leaves linear-oblong to oblong or oblanceolate, 3-10 times as long as wide; corollas white or whitish; styles nearly obsolete (less than 0.3 mm long) ..... *V. peregrina*

7. Principal leaves ovate to broadly elliptic, 1-2 times as long as wide; corollas blue-violet; styles 0.4-1.0 mm long ..... *V. arvensis*

5. Pedicels elongate, mostly 5-35 mm long in fruit, longer than the sepals; stems creeping.

8. Leaves palmately 3- to 5-lobulate; capsules scarcely or not at all notched ..... *V. hederaefolia*

8. Leaves more or less toothed, not palmately lobulate; capsules distinctly notched.

9. Leaves cordate-orbicular to reniform, slightly toothed, mostly about 0.5 cm long; pedicels more than twice as long as leaves ..... *V. filiformis*

9. Leaves triangular to broadly elliptic or ovate, crenate-serrate, more than 1 cm long; pedicels not more than twice as long as leaves ..... *V. persica*

1. Main stems never terminating in an inflorescence; all leaves and bracts opposite.

10. Plants pubescent; leaf blades ovate, crenate-serrate to dentate; plants of dry sites.

11. Leaf blades dentate, cordate or truncate at base; sepals 3.5-5 mm long, linear-lanceolate, exceeding the capsules ..... *V. chamaedrys*

11. Leaf blades crenate-serrate, narrowed to base; sepals 2-3 mm long, oblong-lanceolate, shorter than the capsules ..... *V. officinalis*

10. Plants glabrous; leaf blades oblong-ovate to linear, finely serrate to entire; plants of aquatic habitats.

12. Leaves all short-petiolate ..... *V. beccabunga*

12. Leaves, at least the middle and upper ones of the flowering shoots, sessile and clasping.

13. Capsules not wider than high, slightly or not at all notched at tip; leaves 1.5-5 times as long as wide.

14. Leaves 1.5-3 times as long as wide; fruiting pedicels mostly strongly ascending or upcurved; flowers blue or violet ..... *V. anagallis-aquatica*

14. Leaves (2.5)3-5 times as long as wide; fruiting pedicels divaricately spreading; flowers white to pink or pale blue ..... *V. catenata*

13. Capsules much wider than high, notched at tip; leaves (3)4-20 times as long as wide ..... *V. scutellata*

***Veronica anagallis-aquatica* L.**
Blue water speedwell
Habitat/Range: Wet ditches, edges of streams and lakes in the lowland zone; rare in S and C BC; introduced from Europe.

***Veronica arvensis* L.**
Wall speedwell
Habitat/Range: Lawns, fields and waste places in the lowland, steppe vegetation and montane zones; frequent in S BC; introduced from Europe.

***Veronica beccabunga* L. ssp. *americana* (Raf.) Sellers** (*V. americana* Schwein. ex Benth. in DC.)
American speedwell or brooklime
Habitat/Range: Wet ditches and margins of streams and lakes in the lowland, steppe vegetation and montane zones; common in S BC, infrequent northward; N to AK, YT and NT, E to NF and S to NC, NE, MX and CA.

***Veronica catenata* Pennell**
Pink water speedwell
Habitat/Range: Wet ditches and slow-moving streams in the lowland and montane zones; rare in S BC; circumpolar, E to PQ and S to PA, OH, MO, OK, NM and CA; Europe.

***Veronica chamaedrys* L.**
Germander speedwell, or bird's-eye
Habitat/Range: Grassy places, waste places and open forest in the lowland zone; rare in SW BC; introduced from Eurasia.

***Veronica cusickii* A. Gray**
Cusick's speedwell
Habitat/Range: Moist meadows and rocky slopes in the montane to alpine zones; locally frequent in extreme SC BC, known only from Manning and Cathedral Lakes Provincial Parks; S to ID, W MT and NE OR.

***Veronica filiformis* Sm.**
Slender speedwell
Habitat/Range: Moist grassy places in the lowland zone; rare in W BC; introduced from Asia.

***Veronica hederaefolia* L.**
Ivy-leaved speedwell
Habitat/Range: Moist fields, lawns and waste places in the lowland zone; infrequent in S and C BC; introduced from Europe.

***Veronica officinalis* L.**
Common speedwell
Habitat/Range: Dry fields, roadsides and open forests in the lowland, steppe vegetation and montane zones; common in S BC, rare northward; introduced from Eurasia.

***Veronica peregrina* L.**
Purslane speedwell
Habitat/Range: Moist roadsides and open areas in the lowland and montane zones; frequent throughout S BC, rare northward (var. *xalapensis*), rare on Vancouver Island (var. *peregrina*); E to NB and PE and S to FL, TX and MX.
Notes: Two varieties occur in BC.

1. Plants glabrous; rare on Vancouver Island ..... var. *peregrina*
1. Plants short stipitate glandular in the inflorescences and capsules; the frequent variety ..... var. *xalapensis* (H.B.K.) St. John & Warren

Veronica persica **Poir. in Lam.**
Bird's-eye speedwell
Habitat/Range: Grassy roadsides, lawns and waste places in the lowland and steppe vegetation zones; infrequent in S BC; introduced from Eurasia.

Veronica scutellata **L.**
Marsh speedwell
Habitat/Range: Swamps and edges of streams and lakes in the lowland, steppe vegetation and montane zones; frequent throughout BC; N to AK, YT and NT, E to NF and S to VA, IA, CO and CA.

Veronica serpyllifolia **L.**
Thyme-leaved speedwell
Habitat/Range: Meadows, open forests and streambanks in the lowland, steppe vegetation and montane zones; frequent throughout BC, especially southward; circumpolar, N to AK, E to NF and S to NY, MI and MX; S. America, Eurasia.
Notes: Two varieties occur in BC.
1. Rachis and pedicels incurved-puberulent, non-glandular; corollas to 5 mm wide; introduced in E BC from Europe ..... var. *serpyllifolia*
1. Rachis and pedicels pubescent with spreading glandular hairs; corollas to 8 mm wide; native throughout range in BC ..... var. *humifusa* (Dickson) Vahl

Veronica verna **L.**
Spring speedwell
Habitat/Range: Waste places in the steppe vegetation zone; rare in BC, known only from Grand Forks; introduced from Eurasia.

Veronica wormskjoldii **Roemer & Schultes var.** ***wormskjoldii*** (*V. alpina* L. var. *wormskjoldii* Hook.)
Alpine speedwell
Habitat/Range: Moist meadows in the montane to alpine zones; common throughout BC; N to AK, YT and NT, E to NF and S to NH, NM and CA.

SOLANACEAE

1. Fruits dry, dehiscent capsules; corollas 2-10 cm long ..... *Datura*
1. Fruits fleshy berries; corollas less than 2 cm long.
2. Corolla lobes much longer than the short tube, reflexed; anthers longer than filaments, connivent ..... *Solanum*
2. Corolla lobes shorter than or about equal to tube, generally not reflexed; anthers about equal to or shorter than filaments, free ..... *Lycium*

DATURA

Datura stramonium **L.**
Jimsonweed
Habitat/Range: Waste places in the lowland and steppe vegetation zones; rare garden escape in S BC; introduced from Asia.

LYCIUM

Lycium halimifolium **P. Mill.** (*L. barbarum* L.)
Matrimony vine
Habitat/Range: Waste places, dry hillsides and roadsides in the steppe vegetation zone; rare garden escape in SC BC; introduced from Europe.

SOLANUM

1. Plants climbing or scrambling perennial vines; flowers purple; fruits red ..... *S. dulcamara*
1. Plants annual herbs, not climbing; flowers white or yellow; fruits green or black.
   2. Plants spiny; flowers yellow, 2-3 cm wide ..... *S. rostratum*
   2. Plants not spiny; flowers white or creamy, less than 1 cm wide.
      3. Leaves pinnatilobed ..... *S. triflorum*
      3. Leaves entire, toothed or wavy-margined.
         4. Calyces 4-6 mm long at maturity, cupping the fruit; stems with spreading hairs ..... *S. sarrachoides*
         4. Calyces 2-3 mm long at maturity, not cupping the fruit; stems glabrous or appressed-hairy ..... *S. americanum*

Solanum americanum **P. Mill. var.** ***nodiflorum*** **(N.J. Jacq.) Edmonds in Stearn** (*S. nodiflorum* N.J. Jacq., *S. nigrum* L., pro parte)
Black nightshade
Habitat/Range: Waste places in the lowland and steppe vegetation zones; infrequent in S BC; probably introduced from E or S US.

Solanum dulcamara **L.**
European bittersweet
Habitat/Range: Waste places in the lowland and steppe vegetation zones; infrequent garden escape in S BC; introduced from Europe.

Solanum rostratum **Dunal** (*Androcera rostrata* [Dunal] Rydb., *Solanum cornutum* Lam.)
Buffalo-bur
Habitat/Range: Waste places in the lowland and steppe vegetation zones; infrequent in S BC; introduced from central US.

Solanum sarrachoides **Sentner in Martius**
Hairy nightshade
Habitat/Range: Waste places in the lowland zone and steppe vegetation zones; infrequent in SW and SC BC; introduced from South America.

Solanum triflorum **Nutt.**
Cut-leaved nightshade
Habitat/Range: Waste places in the lowland and steppe vegetation zones; infrequent in S BC; E to PQ and S to CA, TX, IA and MN.

THYMELAEACEAE

DAPHNE

***Daphne laureola* L.**
Spurge-laurel
Habitat/Range: Disturbed sites and mesic forests in the lowland zone; infrequent on S Vancouver Island, the Gulf Islands and adjacent mainland; introduced from Eurasia.

ULMACEAE

ULMUS

***Ulmus pumila* L.**
Siberian elm
Habitat/Range: Moist sites in the steppe vegetation zone; rare in SC BC, known only from Osoyoos; introduced from Asia.

URTICACEAE

1. Plants with stinging bristles; leaves opposite, margins coarsely serrate ..... *Urtica*
1. Plants without stinging bristles; leaves alternate, margins entire ..... *Parietaria*

PARIETARIA

***Parietaria pensylvanica* Muhl. ex Willd.**
Pennsylvania pellitory
Habitat/Range: Moist to mesic shaded areas and disturbed sites in the steppe vegetation and montane zones; rare in NE and SC BC; E to PQ and S to FL, TX, CA and MX.

URTICA[22]

1. Plants annuals; inflorescence in dense clusters of mixed staminate and pistillate flowers; mature achenes triangular, 1.5-2.5 mm long ..... *U. urens*
1. Plants perennials; inflorescence a panicle of either staminate or pistillate flowers; mature achenes lenticular-ovate, 1.0-1.5 mm long ..... *U. dioica*

***Urtica dioica* L. ssp. *gracilis* (Ait.) Seland.** (*U. dioica* ssp. *gracilis* var. *lyallii* [S. Wats.] C.L. Hitchc. in C.L. Hitchc. *et al.*)
Stinging nettle
Habitat/Range: Moist sites in the lowland, steppe vegetation and montane zones; common throughout BC; N to AK, YT and NT, E to NF and S to NY, WV, NM, MX and CA; S America.
Notes: This entity is best recognized as a single, highly variable subspecies (Bassett *et al.* 1974).

***Urtica urens* L.**
Dog or burning nettle
Habitat/Range: Roadsides and waste places; rare in BC south of 51°N; introduced from Eurasia.

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[22] Key adapted from Bassett *et al.* (1974).

VALERIANACEAE[23]

1. Leaves, or at least some of them, deeply pinnate; calyces conspicuous ..... *Valeriana*
1. Leaves entire or merely toothed; calyces minute or obsolete.
   2. Stems dichotomously branched above; fruits 3-celled but only 1-seeded; stigmas 3-lobed ..... *Valerianella*
   2. Stems simple or with opposite axillary branches; fruits 1-celled, the sterile cells obsolete; stigmas 2-lobed, rarely 3-lobed ..... *Plectritis*

PLECTRITIS[24]

1. Convex side of fruits keeled, not grooved; wings of fruits, when developed, tending to be connivent towards the bases and divergent above; hairs of fruits, when present, more or less pointed ..... *P. congesta*
1. Convex side of fruits broader, scarcely keeled, bearing a narrow groove down the center; wings of fruits, when present, about equally divergent above and below; hairs of fruits, when present, blunt ..... *P. macrocera*

***Plectritis congesta* (Lindl.) DC.** (*P. anomala* [A. Gray] Suksd., *P. congesta* ssp. *brachystemon* [Fisch. & Mey.] Morey, *P. samolifolia* [DC.] Hoeck)
Sea blush, or rosy plectritis
Habitat/Range: Mesic to vernally moist meadows or dry rocky sites in the lowland zone; common in SW BC, infrequent in the Queen Charlotte Islands; S to CA.
Notes: A poorly understood complex. The smaller, whitish-flowered phase is sometimes distinguished as ssp. *brachystemon*.

***Plectritis macrocera* T.& G.**
Long-spurred plectritis
Habitat/Range: Vernally moist sites in the lowland, steppe vegetation and lower montane zones; infrequent in SW and SC BC; S to MT, UT and CA.

VALERIANA

1. Plants with stout taproots, leaves thickish, nearly parallel-ribbed; inflorescences more or less paniculiform, even at anthesis ..... *V. edulis*
1. Plants with fibrous roots; leaves relatively thin, reticulate-veined; inflorescences more or less corymbiform at anthesis.
   2. Lower leaves pinnately divided or compound, with 8-21 leaflets or segments, the terminal ones not much larger than the others ..... *V. officinalis*
   2. Lower leaves undivided, or with only 1-4 leaflets or segments, the terminal ones the largest.
      3. Corollas usually 2-4 mm long, the spreading lobes about equalling the tube ..... *V. dioica*
      3. Corollas usually 4-18 mm long, the ascending lobes much shorter than the tube.

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[23] Key adapted from Scoggan (1979).

[24] Key adapted from Hitchcock & Cronquist (1973).

4. Upper stem leaves sessile or nearly so, usually with 1 pair of lateral lobes ..... *V. capitata*

4. Upper stem leaves distinctly petioled, with 3-5 pairs of lateral lobes.

5. Plants 3-12 dm tall; leaves mainly cauline ..... *V. sitchensis*

5. Plants 1-7 dm tall; leaves mainly basal ..... *V. scouleri*

Valeriana capitata* Pallas ex Link ssp. *capitata

Capitate valerian

Habitat/Range: Moist sites in the montane and subalpine zones; infrequent in N BC; circumpolar, N to AK, YT and NT; Eurasia.

***Valeriana dioica* L.** (*V. dioica* ssp. *sylvatica* [Sol. ex Richards.] Mey., *V. sylvatica* Sol. ex Richards. non Schmidt)

Marsh valerian

Habitat/Range: Wet to moist meadows in the montane and subalpine zones; common in BC east of the Coast-Cascade Mountains; N to YT and NT, E to NF and S to ID, WY and WA.

Notes: The North American plants have been recognized as ssp. *sylvatica* but any differences appear to be minor.

Valeriana edulis* Nutt. ex T.& G. ssp. *edulis

Edible valerian

Habitat/Range: Moist (sometimes saline) meadows in the steppe vegetation and montane zones; rare in SC and E BC; E to ON and S to IO, OH, SD, NM, MX and OR.

***Valeriana officinalis* L.**

Garden heliotrope, or common valerian

Habitat/Range: Roadsides and disturbed sites; rare garden escape on S Vancouver Island and the adjacent mainland; introduced from Eurasia.

***Valeriana scouleri* Rydb.** (*V. sitchensis* ssp. *scouleri* [Rydb.] Mey.)

Scouler's valerian

Habitat/Range: Wet to moist sites in the lowland, steppe vegetation and montane zones; infrequent in S BC south of 52°N; E to SW AB and S to NW CA.

Valeriana sitchensis* Bong. ssp. *sitchensis

Sitka valerian

Habitat/Range: Moist sites in all vegetation zones; common throughout BC; N to AK, YT and NT, E to PQ and NB and S to VT, NY, OH, MI, ID and CA.

VALERIANELLA

***Valerianella locusta* (L.) Latt. in Betcke**

Cornsalad

Habitat/Range: Roadsides, fields and waste places; rare garden escape on S Vancouver Island; introduced from Eurasia.

VERBENACEAE

VERBENA

1. Plants usually prostrate or decumbent; leaves, or at least many of them deeply cleft; bracts of the inflorescences conspicuous, exceeding the calyces ..... *V. bracteata*

1. Plants erect; leaves merely toothed or shallowly lobed; bracts of the inflorescences inconspicuous, slightly surpassed by the calyces ..... *V. hastata*

***Verbena bracteata* Lag. & Rodr.**
Bracted vervain
Habitat/Range: Sandy sites, roadsides and disturbed areas in the steppe vegetation and montane zones; locally frequent in SC BC; E to ON and S to VA, FL, MX and CA.

***Verbena hastata* L.**
Blue vervain
Habitat/Range: Moist to wet sites in the lowland and steppe vegetation zones; rare in SW and SC BC; E to NB and NS and S to FL, TX, AZ and CA.

VIOLACEAE[25]

VIOLA[26]

1. Plants annuals, with leafy stems bearing large deeply lobed leaf-like stipules.
   2. Sepals much longer than the petals; flowers with violet and yellow petals ..... *V. tricolor*
   2. Sepals about the same length as the petals; flowers with pale yellow or cream petals .... *V. arvensis*
1. Plants perennials, lacking leafy stems or the stems not bearing large leaf-like stipules.
   3. Flowers yellow (backs of some petals may be brownish).
      4. Leaf bases truncate to cuneate; blades mostly 1.5 to twice as long as wide.
         5. Leaves sinuately toothed, often purplish or the veins purple ..... *V. purpurea*
         5. Leaves entire or serrate, not purplish or purple-veined.
            6. Leaf margins entire to glandular-serrulate; blades ovate to oblong-ovate; bases truncate; seeds tan ..... *V. vallicola*
            6. Leaf margins serrate; blades ovate to broadly ovate; bases cuneate; seeds dark brown ..... *V. praemorsa*
      4. Leaf bases cordate; blades about as long as broad (as measured from the sinus).
         7. Plants stoloniferous; leaves finely mottled with reddish-brown spots ..... *V. sempervirens*

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[25] Contributed by J.G. Packer.

[26] When collecting specimens of this genus identification will be made easier and the material will be of greater scientific value if:
1. The colour of the petals is noted and recorded on collection.
2. The bearding (hairs on the inner surface) of the petals is likewise recorded on collection - all, none, lower three, lateral two.
3. The lower parts of the plants (rootstock, rhizome, stolons) are taken along with the tops.

7. Plants not stoloniferous; leaves not mottled.
   8. Sepals ciliate in the apical half, and with a conspicuous purple-black stripe ..... *V. biflora*
   8. Sepals not ciliate, lacking a purple-black stripe.
      9. Leaves ovate to deltoid; margins ciliate; bases shallowly cordate ..... *V. glabella*
      9. Leaves orbicular; margins not ciliate; bases deeply cordate ..... *V. orbiculata*

3. Flowers violet, blue, lilac, pinkish, white or cream.
   10. Petals white or cream with no bluish tinge, the lower ones sometimes with fine purple lines.
      11. Leaves lanceolate, 3-6 times longer than broad; bases cuneate ..... *V. lanceolata*
      11. Leaves ovate, deltoid, reniform or orbicular; bases cordate.
         12. Lateral petals bearded; leaves and/or sepals ciliate.
            13. Plants with obvious leafy stems at time of flowering; style not hooked ..... *V. canadensis*
            13. Plants lacking leafy stems; style conspicuously hooked downwards at the end .... *V. odorata*
         12. Lateral petals not bearded; leaves and sepals not ciliate.
            14. Plants stoloniferous; leaves glabrous ..... *V. pallens*
            14. Plants not stoloniferous; leaves pubescent at least on the lower surface and petioles ..... *V. renifolia*
   10. Petals violet, blue, lilac or pinkish.
      15. Plants with obvious leafy stems at time of flowering.
         16. Stipules fimbriate-lacerate or serrate (at least basally), reddish brown or greenish with reddish brown flecks.
            17. Sepals ciliate ..... *V. howellii*
            17. Sepals not ciliate ..... *V. adunca*
         16. Stipules scarious, white or greenish, more or less entire.
            18. Ovaries pubescent; leaves ciliate ..... *V. canadensis*
            18. Ovaries glabrous; leaves not ciliate ..... *V. langsdorfii*
      15. Plants lacking obvious leafy stems at time of flowering.
         19. Plants stoloniferous.
            20. Leaves pubescent; styles conspicuously hooked downwards at the tip ..... *V. odorata*
            20. Leaves glabrous; styles not hooked.
               21. Bracts on the peduncle inserted below the middle; usually 3 or more leaves produced with the flowers; leaves orbicular, reniform or ovate, 2.5-5 cm long in flower, to 7.0 cm long in fruit ..... *V. palustris*
               21. Bracts on the peduncle inserted above the middle; usually only 2 leaves produced with the flowers; leaves ovate, 1.0-2.5 cm long in flower, to 3.5 cm long in fruit ..... *V. epipsila*

19. Plants not stoloniferous.
    22. Sepals conspicuously ciliate ..... *V. septentrionalis*
    22. Sepals not ciliate.
        23. Stipules adnate to the petioles; petals not bearded; leaves pubescent on the upper surface ..... *V. selkirkii*
        23. Stipules not adnate to the petioles; at least the two lateral petals bearded; leaves essentially glabrous.
            24. Two lateral petals and the lowest (spur) petal bearded (sometimes all five bearded); stipules not conspicuous ..... *V. nephrophylla*
            24. Two lateral petals bearded; stipules conspicuous.
                25. Stipules lacerate or serrate (at least basally), reddish brown or greenish, often with reddish brown flecks; flowers about 1.5 cm long ... *V. adunca*
                25. Stipules entire, white or greenish; flowers longer ..... *V. langsdorfii*

***Viola adunca* J.E. Smith in Rees**

Early blue violet

Habitat/Range: Dry to moist open woods, meadows, and roadsides; common throughout BC in all vegetation zones; N to S AK, YT and NT, E to NF and S to MA, NY, MI, WI, SD, NM, AZ and CA.

Notes: A highly variable species in which a number of morphological phases have received dubious taxonomic recognition. A compact, dwarf form, glabrous, with dark blue flowers, that occurs sporadically at high elevations has been described as var. *bellidifolia* (Greene) Harrington (*V. bellidifolia* Greene).

***Viola arvensis* Murr.**

European field pansy

Habitat/Range: Waste places, roadsides, mainly in urban areas; infrequent in SW BC; introduced from Europe.

***Viola biflora* L. ssp. *carlottae* Calder & Taylor**

Queen Charlotte twinflower violet

Habitat/Range: Moist rock outcrops and meadows, mostly in the subalpine and alpine zones but occasionally in lower zones; frequent on the Queen Charlotte Islands and also occuring on the Brooks Peninsula of Vancouver Island; endemic to BC, though there is an unconfirmed record from Craig, Alaska.

Notes: Hybridizes with *V. glabella*. The ssp. *biflora* is widely distributed in Eurasia and also occurs in AK, YT and CO.

***Viola canadensis* L. ssp. *rydbergii* (Greene) House in Rydb.**

Canada violet

Habitat/Range: Moist to dry mixed or deciduous woods in the lowland and montane zones; common throughout BC except the extreme NW; N to YT and NT, E to ON and S to SD, NM and OR.

***Viola epipsila* Ledeb. ssp. *repens* (Turcz.) W. Beck.** (*V. achyrophora* Greene, *V. epipsiloides* Löve & Löve)

Dwarf marsh violet

Habitat/Range: Wet meadows, marshes and streambanks in the subalpine and alpine zones; locally frequent in N BC; amphiberingian, N to AK, YT and NT; E Asia.

Notes: As evident from the confusion existing in the current literature the relationships between *V. epipsila* ssp. *repens*, *V. palustris* and *V. pallens* require a critical investigation. The main concern in BC is with *V. epipsila* ssp. *repens* and *V. palustris* which intergrade and are often difficult to separate. Some U.S.S.R. and North American taxonomists regard *V. epipsila* ssp. *repens* to be a quite distinct species and their name for our species would be *V. achyrophora* (*V. epipsiloides*).

***Viola glabella* Nutt. In T.& G.**

Stream or yellow wood violet

Habitat/Range: Moist woods and streambanks in the lowland, montane, subalpine and alpine zones; frequent in BC north to 56°N; N to S AK, E to AB and S to CA.

Notes: Hybridizes with *V. biflora* ssp. *carlottae* on the Queen Charlotte Islands.

***Viola howellii* A. Gray**

Howell's violet

Habitat/Range: Moist woods in the lowland zone; locally frequent on S Vancouver Island; S to OR.

***Viola lanceolata* L.**

Lance-leaved violet

Habitat/Range: Moist woods in the lowland zone; rare in SW BC, known only from Lulu Island; introduced, probably in blueberry stock from E North America.

***Viola langsdorfii* (Regel) Fisch. In DC.**

Alaska violet

Habitat/Range: Moist meadows, stabilized scree slopes and streambanks in the montane to alpine zones; frequent in W BC; amphiberingian, N to AK and S to OR; NE Asia.

***Viola nephrophylla* Greene** (*V. maccabeiana* Baker, *V. cognata* Greene)

Northern bog violet

Habitat/Range: Wet meadows, marshes, moist open woods and streambanks in the montane to alpine zones; common in C and E BC east of the Coast-Cascade Mountains; N to NT, E to NF and S to NY, OH, AR, OK, NM, AZ and CA.

Notes: Two varieties occur in BC.

1. All petals bearded ..... var. *cognata* (Greene) C.L. Hitchc.
1. Only the lower three petals bearded ..... var. *nephrophylla*

Variety *nephrophylla* is the more commonly occurring variety but any differences in the distribution of the two varieties in the province remains to be established. The '*V. nephrophylla*' complex is in need of a critical revision.

***Viola odorata* L.**

Sweet violet

Habitat/Range: Roadsides, boulevards and parking lots mainly in urban areas; an infrequent escaped cultivated ornamental in SW BC, known from Victoria, Mt. Douglas and Galiano Island; introduced from Europe.

Note: This is the traditional cultivated or florist's violet of Europe.

***Viola orbiculata* Geyer ex Hook.**

Rounded-leaved or evergreen yellow violet

Habitat/Range: Moist woods and open slopes in the montane to alpine zones; frequent in BC to 56°N; E to AB, and S to MT, ID and OR.

***Viola pallens* (Banks ex DC.) Brainerd** (*V. macloskeyi* Lloyd ssp. *pallens* [Banks ex DC.] Baker, *V. palustris* L. ssp. *brevipes* Baker)

Small white violet

Habitat/Range: Wet woods and bogs in the montane zone; locally frequent throughout BC to 58°N except the NE; N to NT, E to Labr. and NF and S to SC, MI, MN, CO and WA.

Notes: A number of recent authors have treated *V. pallens* as a subspecies of *V. macloskeyi* but it is clearly quite different. A good illustration of *V. macloskeyi*, which occurs only in CA and OR, is provided by Abrams (1951). See also notes under *Viola epipsila* ssp. *repens*.

***Viola palustris* L.**

Marsh violet

Habitat/Range: Marshes, wet forests and streambanks from the lowland to subalpine zones; common throughout BC except the extreme NW; N to NT, E to Labr. and NF and S to PQ, NH, SD, CO and CA.

Notes: The distribution given here is that conventionally accorded this species by North American authors. See notes under *V. epipsila* ssp. *repens*.

Viola praemorsa* Dougl. ex. Lindl. ssp. *praemorsa (*V. nuttallii* Pursh var. *praemorsa* [Dougl. ex Lindl.] S. Wats.)

Yellow montane violet

Habitat/Range: Dry grassy slopes and oak parkland in the lowland zone; infrequent in the extreme south of Vancouver Island; S to CA.

Notes: It is quite possible that *V. praemorsa* ssp. *linguaefolia* (Nutt. ex T.& G.) Baker & Clausen ex Peck occurs in the Rocky Mountains of extreme SE BC. This subspecies may be distinguished from ssp. *praemorsa* by its longer, narrower cauline leaves (30-60 x 15-25 mm) and the cuneate leaf base.

***Viola purpurea* Kell. var. *venosa* (S. Wats.) Brainerd**

Purple-marked yellow violet

Habitat/Range: Moist meadows and ridges in the alpine zone; rare in S BC, known only from Manning Park; S to MT, CO, AZ and CA.

***Viola renifolia* A. Gray**

Kidney-leaved violet

Habitat/Range: Moist woods and marshes in the montane and subalpine zones; common in BC except the far west; N to AK, YT and NT, E to NF and S to NY, MI, WI, MN, SD and CO.

Notes: Two varieties occur in BC.

1. Leaves pubescent on the upper surface ..... var. *renifolia*
1. Leaves glabrous on the upper surface ..... var. *brainerdii* (Greene) Fern.

Variety *brainerdii* appears to be the more commonly occurring variety. Hitchcock in Hitchcock *et al.* (1961), in considering these two varieties, has inadvertently reversed the characters by which they are distinguished.

***Viola selkirkii* Pursh ex Goldie**

Selkirk's or great spurred violet

Habitat/Range: Rocky slopes and ledges in cool moist forests in the montane zone; infrequent in SE BC and WC BC; circumpolar, N to AK, YT and SW NT, E to NF and S to PA, MI, WI and MN, disjunct in CO; Eurasia.

***Viola sempervirens* Greene**

Trailing yellow or evergreen violet

Habitat/Range: Moist woods in the lowland and montane zones; frequent in SW BC west of the Cascade Mountains, disjunct at Kootenay Lake; N to SE AK and S to CA.

Viola septentrionalis **Greene**
Northern or northern blue violet
Habitat/Range: Moist open forests in the montane zone; rare in SE BC; disjunct in SK, ON E to NF, S to NY, PA, MI, IL and WI.

Viola tricolor **L. ssp.** ***tricolor***
European wild pansy, or Johnny-jump-up
Habitat/Range: Waste ground, roadsides, mainly in urban areas; an infrequent escaped cultivated ornamental, known from the Kootenays, Clearwater and Vancouver; introduced from Europe.

Viola vallicola **A. Nels. var.** ***major*** **(Hook.) Fabijan** (*V. nuttallii* Pursh var. *vallicola* [A. Nels.] St. John)
Yellow sagebrush or yellow prairie violet
Habitat/Range: Dry grassland and open areas in the steppe vegetation and montane zones; common in SC BC to 51°N; S to OR and NV.

ZYGOPHYLLACEAE

TRIBULUS

Tribulus terrestris **L.**
Puncture vine
Habitat/Range: Fields and waste places; rare in SC BC, known only from Osoyoos; introduced from Eurasia.

PTERIDOPHYTES

KEY TO PTERIDOPHYTE FAMILIES[27]

1. Leaves simple, often inconspicuous and sometimes fused with a single, unbranched midvein.
   2. Leaves whorled, sheathing the stem; stems jointed, hollow (except in *Equisetum scirpoides*) (EQUISETOPSIDA) ..... EQUISETACEAE (p. 113)
   2. Leaves spirally arranged or opposite; stems not jointed, solid (LYCOPODOPSIDA).
      3. Plants homosporous, the spores similar and numerous in each sporangium; leaves without a ligule ..... LYCOPODIACEAE (p. 118)
      3. Plants heterosporous, the microspores numerous and small, the megaspores fewer (up to 300 in Isoetes) and larger; leaves ligulate.
         4. Leaves elongate, slender, usually over 10 cm long; stems unbranched; megaspores usually 50-300 ..... ISOETACEAE (p. 116)
         4. Leaves short to elongate, less than 0.5 cm long; stems branched; megaspores 1-4 .... SELAGINELLACEAE (p. 120)
1. Leaves usually divided into leaflets (pinnae), conspicuous, with numerous branched veins (PTEROPSIDA).
   5. Plants heterosporous, aquatic or semiaquatic; sporangia borne in specialized sporocarps.

[27] Fern families follow Lellinger (1985) with the exception of the family Woodsiaceae which was included in Dryopteridaceae and the family Sinopteridaceae which has to be called by the conserved name Adiantaceae (cf. International Code of Botanical Nomenclature, Appendix IIB).

6. Plants usually free-floating; microsporangia and megasporangia borne in separate sporocarps; leaves (in ours) less than 1 cm long ..... AZOLLACEAE (p. 125)

6. Plants rooted; microsporangia and megasporangia borne in the same sporocarp; leaves (in ours) 2-15 cm long ..... MARSILEACEAE (p. 133)

5. Plants homosporous, terrestrial or epiphytic; sporangia borne on the leaves, not enclosed in sporocarps.

7. Sporangia large, borne in terminal appendages that arise from a common stalk ..... OPHIOGLOSSACEAE (p. 133)

7. Sporangia small, borne on the back or margins of the leaves or on modified fronds.

8. Fronds very delicate (resembling a leafy liverwort), blades only one cell thick; plants rhizomatous with threadlike rhizomes, much branched and spreading ..... HYMENOPHYLLACEAE (p. 133)

8. Fronds much coarser, blades two to several cells thick; plants tufted or with rhizomes which are stouter and not threadlike.

9. Sori on or near the margin of the lower surface of the frond, covered by inrolled indusium-like margin, or apparent margin.

10. Rhizomes coarse, much elongated, with hairs only, lacking scales; fronds scattered, very large and coarse, usually over 30 cm long ..... DENNSTAEDTIACEAE (p. 126)

10. Rhizomes very short, scaly, but often with hairs as well; fronds mostly clustered, much smaller, sometimes quite delicate, less than 30 cm long ..... ADIANTACEAE (p. 121)

9. Sori on the lower surface of the fronds, not covered by the leaf margins.

11. Leaves conspicuously dimorphic, fertile and sterile fronds dissimilar.

12. Sori continuous along both sides of the midrib; sterile leaves pinnate, pinnae with entire margin ..... BLECHNACEAE (p. 125)

12. Sori not continuous; sterile leaves pinnate-pinnatifid ..... DRYOPTERIDACEAE (p. 126)

11. Leaves not dimorphic, fertile and sterile fronds alike.

13. Indusia present, at least on young fertile fronds, sometimes only as filamentous segments.

14. Indusia attached in the centre, margins of indusia free.

15. Rhizomes thick, short-creeping; veins not reaching the margins; indusia circular or kidney-shaped ..... DRYOPTERIDACEAE (p. 126)

15. Rhizomes slender, long-creeping; veins reaching the margins; indusia kidney-shaped ..... THELYPTERIDACEAE (p. 136)

14. Indusia attached along their margins.

16. Sori fused in a chain-like fashion along the midrib of pinnules ..... BLECHNACEAE (p. 125)

16. Sori single, rounded or oblique, not fused in a chain-like fashion.

17. Fronds once pinnate with ovate or obovate pinnae ..... ASPLENIACEAE (p. 124)

17. Fronds pinnate-pinnatifid or twice (or more times) pinnate ..... DRYOPTERIDACEAE (p. 126)

13. Indusia absent.

    18. Fronds pinnatifid, the lobes not reaching the rachis ..... POLYPODIACEAE (p. 135)

    18. Fronds either pinnate-pinnatifid or twice (or more times) pinnate.

        19. Leaves ciliate-margined and with unicellular hairs along the rachis and costae ..... THELYPTERIDACEAE (p. 136)

        19. Leaves glabrous or merely glandular, not ciliate margined ..... DRYOPTERIDACEAE (p. 126)

EQUISETOPSIDA

EQUISETACEAE

EQUISETUM

1. Shoots with cones at top of stems, rarely also at ends of the branches.

    2. Fertile and sterile shoots not alike, fertile ones whitish to pinkish, unbranched or sparsely branched, fertile shoots appearing earlier than branched sterile shoots, cones appearing in spring.

        3. Cone-bearing stems usually not branched, fleshy, whitish, pinkish or brown.

            4. Stems 5-15 mm in diameter; stem sheaths with 20-40 teeth; cones hollow, 4-8 cm long ..... *E. telmateia*

            4. Stems 3-5 mm in diameter; stem sheaths with less than 20 teeth; cones solid, less than 4 cm long ..... *E. arvense*

        3. Cone-bearing stems green and branched, persistent, although cone and tips of stems soon wither.

            5. Stem sheaths with teeth fused into 3-6 broad lobes, the number of lobes less than number of ribs on stem; branches usually branched again ..... *E. sylvaticum*

            5. Stem sheaths with distinct teeth, the number of teeth equal to number of ribs on stem; branches not branched again.

                6. Stem sheaths with teeth which have a broad whitish membranaceous margin; branches fine, solid, rectangular in cross section; branch sheaths with 4 teeth ..... *E. pratense*

                6. Stem sheaths with brownish green teeth lacking whitish membranaceous margins; branches coarse, hollow, triangular in cross section; branch sheaths with 3 teeth ..... *E. arvense*

    2. Fertile and sterile shoots similar, fertile ones green, branched or unbranched, appearing at about the same time as sterile shoots or later, cones appearing in summer.

        7. Cones rounded at the top.

            8. Stems with deep furrows; central cavity of stems less than ¼ of stem diameter; stem sheaths with 4-12 teeth, teeth black with conspicuous white margins ..... *E. palustre*

            8. Stems without deep furrows; central cavity of stems more than ½ of stem diameter; stem sheaths with 15-30 teeth, teeth with obscure, narrow white margin or early deciduous.

                9. Stems firm, light green; central cavity of stems at most ⅔ of stem diameter; sheaths dull, the teeth of the stem sheaths deciduous leaving undulated margin of the sheath ..... *E. laevigatum*

9. Stems softer, dark green; central cavity of stems at least 4/5 of the diameter; sheath shiny, the tips of the sheath with small blackish, narrowly white-margined teeth ..... *E. fluviatile*

7. Cones with apiculate tips.

10. Shoots robust; stems 40-150 cm tall and about 6 mm thick, with 15-25 flat ribs, central cavities about 2/3 of stem diameter ..... *E. hyemale*

10. Shoots smaller; stems less than 50 cm tall and less than 4 mm thick, with less than 14 ribs, solid or central cavities up to 1/3 of stem diameter.

11. Stems straight or slightly curved, usually more than 15 cm long and more than 0.6 mm in diameter, hollow, central cavities about 1/3 of stem diameter; sheaths with at least 4 teeth .. .. *E. variegatum*

11. Stems curved, contorted, usually less than 15 cm long and less than 0.6 mm in diameter, solid; sheaths with 3 or rarely 4 teeth ..... *E. scirpoides*

1. Shoots sterile, without cones.

12. Shoots branched with branches in whorls.

13. Teeth of the stem sheaths fused in 3-6 lobes; most branches branched again in a tree-like fashion ..... *E. sylvaticum*

13. Teeth of the stem sheaths distinct; branches not branched again or with occasional branches.

14. Stems without ribs, central cavities about 4/5 of stem diameter; branches in one or very few, often incomplete, whorls ..... *E. fluviatile*

14. Stems with ribs, central cavities not more than 2/3 of stem diameter; branches in numerous ± regular whorls.

15. Stems thick, robust, 0.5-1.5 cm in diameter, pale green; ribs 20-40, inconspicuous; sheaths with 20-40 teeth ..... *E. telmateia*

15. Stems slender, less than 0.5 cm in diameter, green; ribs 4-18, prominent; sheaths with less than 20 teeth.

16. Branches delicate; teeth about 1/2 of the total length of sheaths; central cavity of stems larger than 1/2 of stem diameter ..... *E. pratense*

16. Branches coarse; teeth 1/4-1/3 of the total length of sheaths; central cavity of stems less than 1/2 of stem diameter.

17. Lowest branch internodes longer than the stem sheaths; teeth of the branch sheaths 2-4 times longer than wide, acuminate; central cavity of stems about 1/5 of stem diameter, side cavities narrower ..... *E. arvense*

17. Lowest branch internodes shorter than the stem sheaths; teeth of the branch sheaths as wide as long, acute; central cavity of stems about 1/3 of stem diameter, side cavities almost as wide as the central cavity ..... *E. palustre*

12. Shoots not branched, or with irregular branches (sometimes a result of the injury of the terminal part of the stem).

18. Central cavity of stems about 4/5 of stem diameter ..... *E. fluviatile*

18. Central cavity of stems less than 2/3 of stem diameter, or solid.

19. Sheaths entirely green with deciduous teeth; stems annual with smooth ridges .... *E. laevigatum*

19. Sheaths with a black band or entirely black or brown, teeth persistent or tardily deciduous; stems perennial or evergreen with minutely toothed or tuberculate ridges.

    20. Stems robust, more than 2.5 mm in diameter and usually over 50 cm tall; teeth tardily deciduous ..... *E. hyemale*

    20. Stems finer, less than 2.5 mm in diameter and shorter than 50 cm; teeth persistent.

        21. Stems straight or slightly curved, usually more than 15 cm long and more than 0.6 mm in diameter, hollow, central cavity about ⅓ of stem diameter; sheaths with at least four teeth ..... *E. variegatum*

        21. Stems curved, contorted, usually less than 15 cm long and less than 0.6 mm in diameter, solid; sheaths with three or rarely four teeth ..... *E. scirpoides*

***Equisetum arvense* L.** (*E. arvense* L. var. *boreale* [Bong.] Rupr.)

Common or field horsetail

Habitat/Range: Wet to mesic sandy or disturbed sites, streambanks, fields, open places and shady forests from the lowland and steppe vegetation to alpine zones; common throughout BC; circumpolar, throughout Canada and US, MX; Eurasia, N. Africa, New Zealand.

***Equisetum fluviatile* L. em. Ehrh.** (*E. limosum* L.)

Swamp horsetail

Habitat/Range: Shallow water at lake margins in the lowland, steppe vegetation and montane zones; frequent throughout BC; circumpolar, N to AK, YT and NT, E to NF and S to VA, IN, IA, NE, WY, ID and OR; Eurasia.

Notes: A hybrid with *E. arvense* (*E.* x *litorale* Kuehl. ex Rupr.) is frequent in places where both species occur.

***Equisetum hyemale* L. ssp. *affine* (Engelm.) Stone.** (*Hippochaete hyemalis* [L.] Brubin; *E. hyemale* var. *affine* [Engelm.] A.A. Eaton, var. *californicum* Milde, and var. *elatum* [Engelm.] Morton)

Scouring-rush

Habitat/Range: Moist alluvial forests, riverbanks, roadsides, and forest margins in the lowland, steppe vegetation and montane zones; frequent throughout BC; N to AK, YT and NT, E to NF and S throughout US from FL to CA.

***Equisetum laevigatum* A. Br.**

Smooth scouring-rush

Habitat/Range: Dry to mesic sandy soil, wet margins of lakes, and roadsides in the steppe vegetation and montane zones; frequent in SC and SE BC; E to ON and S to OH, IL, OK, TX, NM, AZ, CA, and MX.

Notes: A hybrid with *E. hyemale* (*E.* x *ferrissii* Clute) occurs infrequently in SC BC.

***Equisetum palustre* L.**

Marsh horsetail

Habitat/Range: Marshes, swamps, and streambanks and forests from the lowland and steppe vegetation to montane zones; frequent in S BC, infrequent elsewhere; circumpolar, N to AK, YT and NT, E to NF and S to VE, CT, MI, IL, MN, ND, MT, ID and CA; Eurasia.

***Equisetum pratense* Ehrh.**

Meadow horsetail

Habitat/Range: Mesic to wet river banks, open grassy slopes, bog margins, wet forests from the montane to subalpine zones; frequent in N BC E of Coast-Cascade Mountains; circumpolar, N to AK, YT and NT, E to MI and S to NJ, MI, IA, SD, MT and WA; Eurasia.

***Equisetum scirpoides* Michx.**

Dwarf scouring-rush

Habitat/Range: Dry to wet alpine meadows, peat bogs and dry coniferous forests in the montane to alpine zones; frequent E of the Coast-Cascade Mountains; circumpolar, N to AK, YT and NT, E to NF and S to CT, NY, MI, WI, IL, SD, ID and WA; Eurasia.

***Equisetum sylvaticum* L.**

Wood horsetail

Habitat/Range: Moist to wet alluvial forests, meadows and swamps in the montane zone; frequent in BC E of the Coast-Cascade Mountains; circumpolar, N to AK, YT and NT, E to NF and S to MA, PA, WV, OH, MI, WI, SD, WY, MT and WA; Eurasia.

***Equisetum telmateia* Ehrh. ssp. *braunii* (Milde) Hauke** (*E. maximum* Lam.)

Giant horsetail

Habitat/Range: Moist alluvial forests, loamy banks, cliffs, and roadsides in the lowland and montane zones; frequent in coastal SW BC and Queen Charlotte Islands, rare E of the Coast-Cascade Mountains; S to CA, disjunct in MI where now possibly extirpated.

***Equisetum variegatum* Schleicher ex Weber & Mohr**

Northern scouring-rush

Habitat/Range: Wet lake shores, streambanks, ditches and meadows from the lowland and steppe vegetation to subalpine and (rarely) alpine zones; frequent in coastal (ssp. *alaskanum*) and interior (ssp. *variegatum*) BC; circumpolar, N to AK, E to NF and S to NH, CT, PA, MI, MN, WY, CO, UT, ID and OR; Eurasia.

Notes: Two subspecies can be distinguished in BC.

1. Sheath teeth brown with wide white margins ..... ssp. *variegatum*
1. Sheath teeth completely black or at most narrowly white-margined ..... ssp. *alaskanum* (A.A. Eaton) Hult.

A hybrid with *E. hyemale* (*E.* x *trachyodon* A. Braun) was collected on the Queen Charlotte Islands (Calder & Taylor 1968). A hybrid with *E. laevigatum* (*E.* x *nelsonii* [A.A. Eaton] Schaffn.) has not been reported from BC, but can be expected.

LYCOPODOPSIDA

ISOETACEAE

ISOETES

1. Corms 3-lobed; plants terrestrial, growing in grassy ephemeral pools, wet in winter and dry in summer ..... *I. nuttallii*

1. Corms 2-lobed; plants aquatic, growing on bottom of lakes or on lake shores sometimes exposed in summer due to the fluctuation of water.

    2. Megaspores spiny (magnification 10x or more).

        3. Megaspores greatly varying in size, often aborted, surfaces resembling a brain coral; spines blunt and dense ..... *I. truncata*

        3. Megaspores uniform in size; spines sharp, not crowded together.

            4. Plants flaccid; megaspore spines elongated, with pointed tips, uniform in size; microspores smooth ..... *I. echinospora*

4. Plants rigid; megaspore spines stubby and blunt, noticeably shorter and denser along the ridges than on the free surface of the spore; microspores spiny ..... *I. maritima*

2. Megaspores smooth or with ridges, not spiny (magnification 10x or more).

5. Lowermost leaves essentially two-ranked; megaspores more than 0.5 mm in diameter; microspores rugose, more than 35 µm long ..... *I. occidentalis*

5. Lowermost leaves spirally arranged; megaspores less than 0.5 mm in diameter; microspores spiny, less than 30 µm long.

6. Base of the leaves blackened, hyaline wing-margins of the leaves extending 1-5 cm above the sporangium; sporangia brown spotted ..... *I. howellii*

6. Base of the leaves green, hyaline wing-margins of the leaves not extending more than 1 cm above the sporangium; sporangia not pigmented ..... *I. bolanderi*

***Isoetes bolanderi* Engelm.**
Bolander's quillwort
Habitat/Range: Shallow lakes and muddy sites in the subalpine zone; rare in SE BC, known only from Akamina Pass; E to AB and S to NM, AZ and CA.

***Isoetes echinospora* Dur.** (*I. muricata* Dur., *I. braunii* Dur.)
Bristle-like quillwort
Habitat/Range: Lakes in the lowland to subalpine zones; infrequent throughout BC; circumpolar, N to AK, YT and NT, E to NF and S to NJ, MI, WI, MT, UT and CA; Eurasia.

***Isoetes howellii* Engelm.**
Howell's quillwort
Habitat/Range: Lake margins exposed in summer in the steppe vegetation and montane zones; rare in SC BC, known from Kamloops Lake, Shuswap and Mara Lakes; S to MT and CA, disjunct in N UT.

***Isoetes maritima* Underw.** (*I. beringensis* Komarov, *I. macounii* A.A. Eaton, *I. muricata* Dur. ssp. *maritima* [Underw.] Hult.)
Coastal quillwort
Habitat/Range: Lake margins and shallow water in the lowland and montane zones; frequent in coastal BC, rare in SC BC; amphiberingian, N to AK and S to WA; E Asia (Bering Island).

***Isoetes nuttallii* A. Br.**
Nuttall's quillwort
Habitat/Range: Vernal pools and ephemeral winter seepages in lowland zone; rare on SE Vancouver Island; S to CA.

***Isoetes occidentalis* Henderson** (*I. paupercula* [Engelm.] A.A. Eaton, *I. lacustris* auct. non L., *I. lacustris* var. *paupercula* Engelm., *I. piperi* A.A. Eaton, *I. flettii* [A.A. Eaton] Pfeiffer)
Western quillwort
Habitat/Range: Lakes in the lowland, steppe vegetation and montane zones; frequent in S BC; S to CO, UT and CA.

***Isoetes truncata* (A.A. Eaton) Clute**
Slashed quillwort
Habitat/Range: Lake margins exposed in summer in the lowland zone; infrequent on SE Vancouver Island; N to AK and S to WA.
Notes: Probably a hybrid between *I. echinospora* and *I. maritima*.

LYCOPODIACEAE

1. Sporangia in the axils of ordinary green leaves, not segregated into definite cones ..... *Huperzia*
1. Sporangia segregated into definite cones.
   2. Plants long creeping with more than one fertile upright branch; sporophylls (bracts of the spike) yellowish and scale-like ..... *Lycopodium*
   2. Plants short creeping with a single upright branch; sporophylls (bracts of the spike) green, leaf-like ..... *Lycopodiella*

HUPERZIA[28]

1. Leaves 0.5 mm wide, lanceolate-subulate, thin, dark green with recurved tips ..... *H. miyoshiana*
1. Leaves 1-1.5 mm wide, linear or lanceolate, firm, light or yellowish green, with straight or incurved tips.
   2. Plants green, up to 20 cm tall; leaves loose, not appressed to the stem; sporangia scattered all over the stem; gemmae inconspicuous ..... *H. occidentalis*
   2. Plants yellowish or yellowish green, not more than 12 cm tall; leaves appressed to the stem; sporangia in the upper part of the stem; gemmae conspicuous, especially towards the top of the stem ..... *H. haleakalae*

***Huperzia haleakalae* (Brackenr.) Beitel** (*H. selago* [L.] Bernh. ex Schrank & Mart. sens. lat., *H. selago* ssp. *arctica* [Tolm.] Löve & Löve, *Lycopodium selago* L. ssp. *patens* [Beauv.] Calder & Taylor)
Haleakala fir clubmoss
Habitat/Range: Dry rocky places in the alpine zone; frequent throughout BC; N to AK, YT and NT.

***Huperzia miyoshiana* (Makino) Ching** (*H. chinensis* [Christ] Czer., *H. selago* [L.] Bernh. ex Schrank & Mart. ssp. *chinensis* [Christ] Löve & Löve, *Lycopodium selago* L. ssp. *miyoshianum* [Makino] Calder & Taylor)
Miyoshi-no fir clubmoss
Habitat/Range: Mesic to wet rocky places, forests, and coastal bogs from the lowland to alpine zones; frequent in coastal BC; amphiberingian, N to AK and S to WA; E Asia.

***Huperzia occidentalis* (Clute) Beitel** (*Lycopodium lucidulum* Michx. var. *occidentale* [Clute] L.R. Wilson)
Western fir clubmoss
Habitat/Range: Mesic open coniferous forests, rocky places and bogs from the lowland to subalpine zones; frequent in BC N to 56°; N to AK, E to W AB and S to ID and OR.

LYCOPODIELLA

***Lycopodiella inundata* (L.) Holub** (*Lycopodium inundatum* L.)
Bog club-moss
Habitat/Range: Wet peat bogs and lake margins in the lowland and montane zones; frequent in coastal BC, infrequent in C and SE BC; circumpolar (but widely disjunct), N to SE AK, E to NF, and S to MD, VA, MT, and CA; Europe, Japan.

LYCOPODIUM

1. Leaves in 6 to 10 ranks, usually more than 4 mm long.

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[28] Contributed by J. Beitel and A. Ceska.

2. Stems upright, branched in a tree-like fashion ..... *L. dendroideum*

2. Stems decumbent, or ascending, but not branched in a tree-like fashion.

3. Cones stalked, one or several on each fertile branch; midrib of the leaf extends into a long whitish hair (no hairs in var. *integerrinum*), the apical part of the leaves entire ..... *L. clavatum*

3. Cones sessile, one on each fertile branch; leaves without whitish hairs, the apical part of the leaves slightly serrate, or entire ..... *L. annotinum*

1. Leaves in 4 or 5 ranks, less than 4 mm long.

4. Stems horizontal, below ground, strongly flattened and winged; leaves on ventral side noticeably narrower than leaves on margins or on dorsal sides of the stem ..... *L. complanatum*

4. Stems horizontal, mainly above ground, round or slightly flattened, not winged; leaves on ventral side similar in size to other leaves.

5. Cones sessile; vegetative branches flattened; ventral leaves trowel-shaped; plants usually bluish-green ..... *L. alpinum*

5. Cones stalked; vegetative branches round; ventral leaves indistinguishable from other leaves of the stem; plants usually light green ..... *L. sitchense*

Lycopodium alpinum L. (*Diphasiastrum alpinum* [L.] Holub)

Alpine clubmoss

Habitat/Range: Open dry to mesic areas in heath communities in the alpine zone; common throughout BC, absent on the Queen Charlotte Islands; circumpolar, N to AK, YT, and NT, E to AB and S to MT, ID, and WA, disjunct to MI, PQ, NB, and NF; Eurasia.

Lycopodium annotinum L. (*L. dubium* Zoega, *L. pungens* La Pylaie ex Iljin)

Stiff clubmoss

Habitat/Range: Dry to moist coniferous forests, wet peat bogs and rock outcrops in the lowland to subalpine zones; frequent throughout BC; circumpolar, N to AK, YT, NT, E to NF and S to NC, WV, ID, and OR, disjunct in NM; Eurasia.

Notes: A variable species. In this treatment it includes *L. dubium* which is treated by some authors as a separate species.

Lycopodium clavatum L. (*L. lagopus* [Laest.] Zinserl. ex Kuzen. = var. *monostachyon)*

Running clubmoss

Habitat/Range: Dry to mesic open sites, forest clearings, forests, and bogs from the lowland and steppe vegetation to montane zones; usually on nutrient poor, acid soils, frequent throughout BC, infrequent in SC BC; cosmopolitan, N to AK, YT and NT, E to NF and S to NC, MI, WI, MT, ID and N CA; Europe, Asia, Africa, S America.

Notes: A variable species, divided by some authors into several varieties, three of which occur in BC.

1. Plants with only one cone on each fertile branch ..... var. *monostachyon* Hook. & Grev.
1. Plants with two or more cones on each fertile branch.
   2. Tips of the leaves with a whitish hair ..... var. *clavatum*
   2. Tips of the leaves lacking a whitish hair ..... var. *integerrimum* Spring

Lycopodium complanatum L. (*Diphasiastrum complanatum* [L.] Holub)

Ground-cedar

Habitat/Range: Dry to mesic coniferous forests and peat bog margins in the lowland, steppe vegetation and montane zones; frequent throughout BC, rare on Vancouver Island and the Queen Charlotte Islands; circumpolar, N to AK, YT and NT, E to NF and S to NY, MI, MT, and WA; Eurasia, S America.

***Lycopodium dendroideum* Michx.** (*L. obscurum* L. var. *dendroideum* [Michx.] D.C. Eaton)
Ground-pine
Habitat/Range: Dry to mesic coniferous forests, peat bogs, and rocky or sandy sites in the lowland to montane zones; frequent on N coast and in C BC, infrequent elsewhere; amphiberingian, N to AK, YT and NT, E to NF and S to VA, IA, MT, and WA; E Asia.

***Lycopodium sitchense* Rupr.** (*L. sabinifolium* Willd. ssp. *sitchense* [Rupr.] Calder & Taylor, *Diphasiastrum sitchense* [Rupr.] Holub)
Alaska clubmoss
Habitat/Range: Dry to mesic heath communities in the subalpine and alpine zones; common along the coast, SW and SC BC; amphiberingian, N to AK and YT, E to NF and S to ME, NH, MT, ID and OR; E Asia.

SELAGINELLACEAE

SELAGINELLA

1. Cones stalked, circular in cross-section; leaves flat without a grooved midvein, with 2 to 4 small teeth on each side at the tip, not extending into a bristle ..... *S. selaginoides*

1. Cones sessile, rectangular in cross-section; leaves with grooved midvein, without teeth near the tip, extending into an apical bristle.

   2. Leaves distinct from stem in colour, their bases abruptly adnate, not decurrent (except on the top of the branches) ..... *S. wallacei*

   2. Leaves about the same colour as the stem, strongly decurrent.

      3. Leaves adnate to the stem for nearly ½ of their length; plants with long branches, forming loose mats, usually epiphytic on stems and branches of trees ..... *S. oregana*

      3. Leaves adnate to the stem for less than ¼ of their length; plants with short branches, forming dense mats, terrestrial on soil or rocks.

         4. Leaf bristles less than 1 mm long; branches intricate, with scattered roots ..... *S. sibirica*

         4. Leaf bristles at least 1 mm long; branches discrete, without scattered roots ..... *S. densa*

***Selaginella densa* Rydb.**
Compact selaginella
Habitat/Range: Dry soil and rocks in the steppe vegetation zone and from the montane to alpine zones; frequent in SC BC, infrequent N to 56°N; E to SE MB and S to SD, W TX, NM, AZ and N CA.
Notes: A variable species; two varieties occur in BC.
1. Sporophylls denticulate to piliform-ciliate from the base to the apex ..... var. *densa*
1. Sporophylls ciliate only at the base ..... var. *scopulorum* (Maxon) Tryon

***Selaginella oregana* D.C. Eaton**
Oregon selaginella
Habitat/Range: On trunks and branches of trees, and moist shady rocks in the lowland zone; rare in coastal BC, known only from the Queen Charlotte Islands and Broken Islands; S to N CA.

Selaginella selaginoides **(L.) Link**
Mountain-moss
Habitat/Range: Wet inundated places, peat bogs or boggy lake shores in the lowland to montane zones; infrequent throughout BC, occurring mostly on the coast and in the Rocky Mountains; circumpolar, N to AK, YT and NT, E to NF and S to ID, WY and CO; Eurasia.

Selaginella sibirica **(Milde) Hieron.**
Northern selaginella
Habitat/Range: Dry rocks or rocky soil in the alpine zone; rare in N BC; amphiberingian, N to AK, YT and W NT; E Asia.

Selaginella wallacei **Hieron.**
Wallace's selaginella
Habitat/Range: Dry rocks and rocky soil from the lowland and steppe vegetation to subalpine zones; frequent in S BC south of 52°N; E to SW AB and S to MT and N CA.

PTEROPSIDA

ADIANTACEAE

1. Sori clearly separate, borne on underside of reflexed margins of pinnae; pinnules rhomboic-ovate or fan-shaped ..... *Adiantum*
1. Sori continuous along the margin of the reflexed frond segment; pinnules more or less oblong or linear-lanceolate.
   2. Sori on the lower surface of the frond, not covered by the leaf margin; backs of fronds covered with white or yellowish powder ..... *Pentagramma*
   2. Sori on or near the margin of the lower surface of the frond, covered by inrolled indusium-like margin, or apparent margin; back of fronds without white or yellowish powder.
      3. Stipes herbaceous, green except at base ..... *Cryptogramma*
      3. Stipes wiry, dark and shining.
         4. Blades more or less woolly beneath; segments small, the ultimate segments of the leaves less than 5 mm long ..... *Cheilanthes*
         4. Blades glabrous (or hairy, but not woolly in *Pellaea atropurpurea*); the ultimate segments more than 5 mm long.
            5. Fronds deltoid, not much longer than wide; segments linear, narrowly elongate, upper surfaces striate, shiny ..... *Aspidotis*
            5. Fronds lanceolate or ovate, considerably longer than broad; segments lanceolate to oblong-ovate, upper surfaces not striate or shiny ..... *Pellaea*

ADIANTUM

1. Rachis appearing branched into ± equal branches; ultimate pinnules oblong, fanshaped, 2-4 times longer than wide, attached to straight leaf axes ..... *A. aleuticum*

1. Rachis unbranched; ultimate pinnules round to broadly oblanceolate, not more than 2 times longer than wide, attached to conspicuously zig-zag flexed leaf axes ..... *A. capillus-veneris*

***Adiantum aleuticum* (Rupr.) Paris** (*A. pedatum* L. ssp. *aleuticum* [Rupr.] Calder & Taylor, ssp. *calderi* Cody, var. *aleuticum* Rupr., and var. *subpumilum* Wagner in Wagner & Boydston)

Maidenhair or northern maidenhair fern

Habitat/Range: Moist forests, rocks, rocky scree, and banks in the lowland and montane zones; frequent throughout BC, mostly S of 55°N; amphiberingian, N to AK, E to SW AB and S to CA; disjunct E on serpentines in PQ, NF, and VT; E Asia.

Notes: Small plants with small fronds (5 to 15 cm across) and strongly imbricate pinnules were described as *A. pedatum* L. var. *subpumilum* Wagner in Wagner & Boydston. They clearly belong to this species, but no formal nomenclatural transfer has been done yet. This variety or form is rare on coastal bluffs from N Vancouver Island S to Olympic Peninsula, WA.

***Adiantum capillus-veneris* L.**

Venus-hair or southern maidenhair fern

Habitat/Range: Wet rock cliffs in the montane zone; rare in E BC, known only from Fairmont Hot Springs; cosmopolitan, disjunct S to SD, VA, NC, FL, TX and CA; Europe, S Asia, Africa, S America, Australia.

ASPIDOTIS

***Aspidotis densa* (Brackenr.) Lellinger** (*Cryptogramma densa* [Brackenr.] Diels in Engl. & Prantl, *Cheilanthes densa* [Brackenr.] St.John, *Cheilanthes siliquosa* Maxon)

Indian's-dream fern

Habitat/Range: Rock outcrops and seepages in the lowland, steppe vegetation and montane zones; infrequent in BC south of 54°N; disjunct E to PQ and S to MT, ID, and CA.

CHEILANTHES

1. Blades and rachis without scales; pinnules tomentose beneath and thinly villous above ..... *C. feei*

1. Blades and rachis with scales; pinnules densely tomentose beneath, glabrous above ..... *C. gracillima*

***Cheilanthes feei* T. Moore**

Slender lip fern

Habitat/Range: Dry calcareous (or other basic) rocks in the montane zone; infrequent in S BC east of the Coast-Cascade Mountains; E to AB and S to WI, IL, AR, TX, NM, AZ, MX and CA.

***Cheilanthes gracillima* D.C. Eaton in Torr.**

Lace fern

Habitat/Range: Dry rocks and rock crevices in the lowland, steppe vegetation and montane zones; rare in C and extreme S BC; S to ID, MT, UT and CA.

CRYPTOGRAMMA[29]

1. Rhizomes slender, creeping; leaves scattered along the rhizome, delicate; sterile leaves ovate to lanceolate in the outline ..... *C. stelleri*

1. Rhizomes stout; leaves tufted, relatively coarse; sterile leaves broadly ovate to almost triangular in the outline base.

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[29] Contributed by E.R. Alverson & A. Ceska.

2. Mature leaves soft, thin and translucent when dried, deciduous in autumn; dried leaves of a previous year not persisting on the plant; the upper side of leaves lacking trichomes ..... *C. cascadensis*

2. Mature leaves coriaceous, opaque, evergreen; dried leaves of a previous year persisting on the plant; the upper side of leaves with cylindrical trichomes on veins.

   3. Sterile leaves 2-3 times pinnate, coarsely dissected; their ultimate segments elongated, lanceolate or oblanceolate with 6-12 or more teeth or shallow lobes ..... *C. acrostichoides*

   3. Sterile leaves 2-4 times pinnate, finely dissected; their ultimate segments ovate or obovate, with 2-6 deep lobes ..... *C. sitchensis*

***Cryptogramma acrostichoides* R. Br. in Richards.** (*C. crispa* [L.] R. Br. ex Hook. var. *acrostichoides* [R. Br. in Richards.] C.B. Clarke, ssp. *acrostichoides* [R. Br. in Richards.] Hult.)
Parsley fern, or mountain-parsley
Habitat/Range: Dry rocks from the lowland to alpine zones; frequent throughout S BC, less frequent northward; amphiberingian, N to AK, YT and NT, E to ON and PQ and S to MI, MT, WY, CO, NM, UT, NV and CA; E Asia.

***Cryptogramma cascadensis* Alverson**
Cascade parsley fern
Habitat/Range: Dry to mesic rocks and scree slopes in the alpine zone; rare in BC, known only from Revelstoke and the Cascade Mountains; S to CA.

***Cryptogramma sitchensis* (Rupr.) T. Moore** (*C. acrostichoides* R. Br. var. *sitchensis* [Rupr.] C. Christ.)
Sitka parsley fern
Habitat/Range: Dry to mesic rocks and talus slopes from the lowland to alpine zones; infrequent in NW BC; N to AK, YT and NT.

***Cryptogramma stelleri* (Gmel.) Prantl**
Slender rock-brake
Habitat/Range: Wet crevices in calcareous rocks from the montane to alpine zones and in the steppe vegetation zone; infrequent throughout BC, mainly E of the Coast-Cascade Mountains; circumpolar, N to AK, YT and NT, E to AB, disjunct to ON and E to NF and S to NY, NJ, PA, WV, IL, IA, MT, NM, UT and OR; extreme NE Europe, N Asia.

PELLAEA

1. Stipes and rachis sparsely pilose, dull; pinnae long-stalked, the basal ones with stalks 5-15 mm long; sterile and fertile fronds dissimilar, the fertile exceeding the sterile ones ..... *P. atropurpurea*

1. Stipes and rachis glabrous or nearly so, shiny; pinnae short-stalked with stalks 0-6 mm long; sterile and fertile fronds alike ..... *P. occidentalis*

***Pellaea atropurpurea* (L.) Link**
Purple cliff-brake
Habitat/Range: Dry to mesic limestone rocks in the montane and subalpine zones; rare in SE BC; E to AB, SK and disjunct to ON and S to NY, MI, WI, MT, SD, WY, FL, NM, AZ, MX and Guatemala.

***Pellaea occidentalis* (E. Nelson) Rydb. ssp. *simplex* (Butters) Gastony** (*P. glabella* var. *simplex* [E. Nelson] Butters and *P. suksdorfiana* Butters = ssp. *simplex*; *P. pumila* Rydb. and *P. glabella* var. *occidentalis* [E. Nelson] Butters = ssp. *occidentalis*)
Simple or smooth cliff-brake

Habitat/Range: Dry to mesic crevices of calcareous rocks in the steppe vegetation and montane zones; infrequent in SC and SE BC, rare in NE; E to AB, S to WA, and disjunct to NM, UT, CO, and AZ.

Notes: In British Columbia, only the ssp. *simplex* is known. The other subspecies, ssp. *occidentalis*, can be expected in SE BC. The two subspecies can be distinguished as follows:

1. Rachis reddish-brown to brown-purple; stipes thick and sturdy, old stipes conspicuous; sporangia with 32 spores ..... ssp. *simplex* (Butters) Gastony
1. Rachis golden to dark brown; stipes thin and brittle, old stipes inconspicuous; sporangia with 64 spores ..... ssp. *occidentalis*

PENTAGRAMMA

***Pentagramma triangularis* (Kaulf.) Yatskievych, Windham & Wollenweber** (*Pityrogramma triangularis* [Kaulf.] Maxon)

Goldenback fern

Habitat/Range: Dry rocky crevices in the lowland zone; infrequent on SE Vancouver Island and adjacent coast; S to NM, UT, NV, AZ and CA.

ASPLENIACEAE

ASPLENIUM

1. Stipes green or dark green, deciduous; rachis green throughout ..... *A. viride*
1. Stipes purplish brown, persistent; rachis dark brown or purplish brown, at least in its lower part.
   2. Rachis brown or purplish brown almost to the tip, winged with whitish scarious margins (at 10x magnification); pinnae arranged flat with the plane of the blade ..... *A. trichomanes*
   2. Rachis brown or purplish brown on the lower part, green on the upper third of the frond, lacking the whitish scarious margins; pinnae arranged obliquely or perpendicular to the plane of the blade (as in Venetian blinds) ..... *A. adulterinum*

***Asplenium adulterinum* Milde**

Corrupt spleenwort

Habitat/Range: Dry to mesic walls of limestone fissures in the subalpine zone; rare on N Vancouver Island, not known elsewhere in N America; Europe.

Notes: This species is an allotetraploid which originated from a hybrid of diploid species *A. trichomanes* x *A. viride*. Our plants may belong to *A. adulterinum* ssp. *presolanense* Mokry, Rasbach & Reichstein (Mokry *et al.* 1986).

***Asplenium trichomanes* L.** (*A. melanocaulon* Willd.)

Maidenhair spleenwort

Habitat/Range: Dry to mesic rocks in lowland and montane zones; frequent in coastal BC, infrequent in the interior; circumpolar, N to S AK, E to AB and disjunct in ON to NF and S to GA, LA, TX, NM, AZ and CA; Eurasia.

Notes: A variable species. Two chromosome races (diploid ssp. *trichomanes* and tetraploid ssp. *quadrivalens* D.E. Meyer) were reported from N America (Moran 1982). The third race, diploid ssp. *inexpectans* Lovis, was described from Europe. According to Mokry *et al.* (1986) this subspecies participated in the origin of our *A. adulterinum* and thus could be expected in BC. Morphological characters distinguishing these races, however, are very minute.

***Asplenium viride* Huds.** (*A. trichomanes-ramosum* L.)
Green spleenwort
Habitat/Range: Mesic to moist crevices in limestone and other basic rocks from the lowland and steppe vegetation to subalpine zones; infrequent throughout BC; circumpolar, N to AK, YT and NT, E to AB and disjunct in ON to NF and S to VT, MI, WI, SD, MT, CO, UT, NV and OR; Eurasia.
Notes: Some authors advocate the use of Linné's name *A. trichomanes-ramosum*, which should be rejected as a trinomial.

AZOLLACEAE

AZOLLA

1. Glochidia without (or with one or two) septae; megaspores reticulate in the basal region; rare in SW BC ..... *A. filiculoides*
1. Glochidia with many septae; megaspores pitted in the basal region; rare in SC BC ..... *A. mexicana*

***Azolla filiculoides* Lam.**
Large mosquito fern
Habitat/Range: Surface of water, sloughs and ditches in the lowland zone; rare in SW BC (lower Fraser River Valley); introduced from Europe.

***Azolla mexicana* K.B. Presl**
Mexican mosquito fern
Habitat/Range: Surface of water, sloughs and pools in the montane zone; rare in SC BC, known only from Salmon Arm and Sicamous; S to WI, IL, MO, TX, NM and CA.

BLECHNACEAE

1. Fertile leaves strongly differentiated from sterile leaves; plants 10-60 cm tall ..... *Blechnum*
1. Fertile leaves not differentiated from sterile leaves; plants 60-120 (or more) cm tall ..... *Woodwardia*

BLECHNUM

***Blechnum spicant* (L.) Roth** (*B. doodioides Hook.*)
Deer fern
Habitat/Range: Mesic to wet forests, peatbogs, and open places in the lowland to montane zones; frequent in coastal BC, infrequent in SC BC; circumpolar, but widely disjunct, N to AK and S to ID, CA; N Africa, Eurasia.
Notes: Our plants are generally more robust than their European counterpart and are referred by some authors (e.g., Löve & Löve 1966, 1968) to the amphiberingian ssp. *nipponicum* (Kunze) Löve & Löve.

WOODWARDIA

***Woodwardia fimbriata* J.E. Smith ex Rees**
Giant chain fern
Habitat/Range: Moist forests and seepy coastal cliffs in the lowland zone; rare in BC (SE Vancouver Island, Lasqueti and Texada Islands); S to CA, disjunct to AZ and NV.

DENNSTAEDTIACEAE

PTERIDIUM

***Pteridium aquilinum* (L.) Kuhn** (*P. aquilinum* var. *pubescens* Underw. & var. *lanuginosum* [Bong.] Fern. = ssp. *lanuginosum*; *P. aquilinum* var. *latiusculum* [Desv.] Underw. = ssp. *latiusculum*)

Bracken fern

Habitat/Range: Dry to wet forest margins and openings, peatbogs, logged areas and dry meadows from the lowland and steppe vegetation to subalpine zones; common in BC north to 55°N (ssp. *lanuginosum*) or rare in SC BC (ssp. *latiusculum*); cosmopolitan, E to W AB, disjunct to MB and ON, and S to GA, TX, NM, AZ and CA; Eurasia, Africa, Australia, S America.

Notes: Most BC plants of this species belong to *P. aquilinum* ssp. *lanuginosum*. Two subspecies can be distinguished as follows:

1. Leaves broadly triangular, but rarely ternate; pinnules nearly at right angles to the rachis, their lower surface densely villous or villous-puberulent; the inner indusium ciliate and sometimes also pubescent ..... ssp. *lanuginosum* (Bong.) Hult.
1. Leaves mostly ternate; pinnules at an oblique angle to the rachis, their lower surface glabrate and short-pubescent only on the midrib; the inner indusium glabrous ..... ssp. *latiusculum* (Desv.) C.N. Page

DRYOPTERIDACEAE

1. Leaves conspicuously dimorphic, fertile and sterile fronds dissimilar ..... *Matteuccia*
1. Leaves not dimorphic (or slightly dimorphic in *Dryopteris cristata*), fertile and sterile fronds similar.
   2. Indusia present, at least on young fertile fronds, sometimes only as filamentous segments.
      3. Indusia splitting into filamentous or ribbon-like segments ..... *Woodsia*
      3. Indusia membranaceous or scale-like.
         4. Indusia attached in the centre, margins of indusia free.
            5. Pinnae margins thin and green; indusia kidney-shaped, with a deep sinus in the middle ..... *Dryopteris*
            5. Pinnae margins thick and pale; indusia shield-shaped, without a deep sinus ... *Polystichum*
         4. Indusia attached along their margins, lanceolate or pouch-like.
            6. Indusia lanceolate, attached along their margin; free margins of indusia entire .... *Athyrium*
            6. Indusia ovate, pouch-like; free margins of indusia serrate or lacerate ..... *Cystopteris*
   2. Indusia absent.
      7. Leaves tufted on a short rhizome that is covered by the conspicuous, persistent, densely clustered petiole-bases of previous years.
         8. Sori elongate; leaves relatively large, 2-8 dm long, forming a vase-like tuft; persistent petiole bases appressed, coarse, flattened, 3 mm wide or more ..... *Athyrium*
         8. Sori round; leaves smaller, 0.5-3.5 dm long, not forming a vase-like tuft; persistent petiole bases free standing, more slender and wiry, not more than 2 mm wide ..... *Woodsia*
      7. Leaves scattered or in small tufts, not accompanied by conspicuous, persistent petiole bases of previous years.

9. Pinnae of the first order alternate; leaves lanceolate or triangular-lanceolate in the outline, longer than broad ..... *Cystopteris*

9. Pinnae of the first order opposite; leaves triangular in the outline, about as long as broad ..... *Gymnocarpium*

ATHYRIUM

1. Indusia crescent-shaped, persistent; fronds well-expanded, flat; pinnae not appearing crowded or directed sharply towards the apices of the fronds ..... *A. filix-femina*

1. Indusia inconspicuous, withering early; fronds obliquely folded; pinnae crowded and directed sharply towards the apices of the fronds ..... *A. distentifolium*

***Athyrium distentifolium* Tausch ex Opiz ssp. *americanum* (Butters) Hult.** (*A. alpestre* [Hoppe] Opiz non Clairv., *A. distentifolium* var. *americanum* [Butters] Boivin, *A. americanum* [Butters] Maxon)

Alpine lady fern

Habitat/Range: Dry to mesic scree slopes and rocks in the subalpine and alpine zones; infrequent in S BC, rare northward; N to AK, YT and NT, disjunct in PQ and NF, S to WY, CO, NE and CA.

***Athyrium filix-femina* (L.) Roth ssp. *cyclosorum* (Rupr.) C. Christ. in Hult.** (*Athyrium cyclosorum* Rupr., *A. filix-femina* var. *sitchense* Rupr. and var. *californicum* Butters)

Lady fern

Habitat/Range: Mesic to wet alluvial forests, swamps and rock outcrops from the lowland and steppe vegetation to alpine zones; common throughout BC; amphiberingian, N to AK, YT and NT, E to NF and S to PE, OH, WI, IA, and CA; E Asia.

CYSTOPTERIS

1. Rhizomes short; fronds forming clumps; stipes shorter than the leaf blades; leaf blades lanceolate or ovate, about 2-3 times longer than wide ..... *C. fragilis*

1. Rhizomes long-creeping; fronds arising singly at the end of the rhizome; stipes longer than the leaf blades; leaf blades triangular, about as long as wide ..... *C. montana*

***Cystopteris fragilis* (L.) Bernh.** (*C. dickieana* R. Sim)

Fragile fern

Habitat/Range: Dry to moist rocks and forest margins from the lowland and steppe vegetation to alpine zones; common throughout BC; cosmopolitan, N to AK, YT and NT, E to NF, throughout the US; Eurasia, Africa, New Zealand, Australia, S America, Antarctic Islands.

Notes: This variable species as treated here includes both plants with spiny spores (*C. fragilis s.str.*) and those with rugose spores. Plants with rugose spores were segregated in Europe as *C. dickieana*. Ceska & Ceska (unpubl.) found that our populations with rugose spores are not uniform in other characters and agree with C. Haufler (cited in Lellinger 1985), that "some of the American material ... may not be conspecific with material from the type locality of *C. dickieana*..."

***Cystopteris montana* (Lam.) Bernh.** (*Rhizomatopteris montana* [Lam.] Khokhr.)

Mountain bladder fern

Habitat/Range: Moist to wet calcareous scree slopes, rock outcrops and damp woods in the montane and subalpine zones; rare in N BC and in the Rocky Mountains; circumpolar, N to AK, YT and NT, E to AB, disjunct in ON, PQ, NF and S to MT and disjunct in CO; Eurasia.

DRYOPTERIS

1. Blades densely covered by capitate glands; indusia with glandular margins; plants aromatic ..... *D. fragrans*

1. Blades and indusia without glands; plants not aromatic.

   2. Fronds strongly dimorphic, fertile fronds taller and narrower than the sterile ones; pinnae markedly reduced towards the base; segments of the lower pinnae rounded in outline, broadly attached and scarcely or not at all contracted at the base ..... *D. cristata*

   2. Fronds alike; pinnae not reduced towards the base; segments of the lower pinnae oblong in outline, narrowly attached to the costa and contracted at the base.

      3. Sori located close to the leaf margin; apical part of pinnules shallowly crenulate or entire; leaves blue green ..... *D. marginalis*

      3. Sori located between the leaf margin and the midrib, never directly at the leaf margin; apical part of pinnules serrate or dentate; leaves dark green or yellow green, without a blue tinge.

         4. Laminae three to four times pinnate; leaf blades not narrowed towards their base.

            5. Leaf blades triangular in outline, broadest at the base, lines connecting tips of the lower pinnae clearly divergent; basal pinnules of the lowest pinna alternate, those pointing down more than twice as long as the pinnules pointing up ..... *D. expansa*

            5. Leaf blades elongate deltoid in the outline, lines connecting tips of lower pinnae almost parallel; basal pinnules of the lowest pinna approximated and almost opposite, those pointing down less than twice as long as the pinnules pointing up ..... *D. carthusiana*

         4. Laminae pinnate-pinnatifid to sometimes twice pinnate-pinnatifid; leaf blades narrowed towards their base.

            6. Pinnae subsessile, oblong-lanceolate; the lower basal pinnules asymmetrical, with semicordate base, overlying the main rachis; costa with narrowly lanceolate scales ..... *D. arguta*

            6. Pinnae clearly stalked, deltoid-lanceolate; basal pinnules symmetrical with cuneate base; costa with hair-like scales ..... *D. filix-mas*

***Dryopteris arguta* (Kaulf.) Watt**
Coastal wood fern
Habitat/Range: Mesic forest margins and rocky coastal cliffs in the lowland zone; rare in SW BC, known from the Nanoose Hill area, Denman and Hornby Islands; S to CA, disjunct in AZ.

***Dryopteris carthusiana* (Vil.) H.P. Fuchs** (*D. spinulosa* [Sw.] Watt, *D. austriaca* auct. non [Jacq.] Woynar, *D. dilatata* auct. non Hoffm.)
Toothed wood fern
Habitat/Range: Wet forests and swamps in the lowland, steppe vegetation and montane zones; infrequent throughout BC; circumpolar, N to YT and NT, E to NF and S to SC, AR, NE, MT, ID and WA; Eurasia.

***Dryopteris cristata* (L.) A. Gray**
Crested wood fern
Habitat/Range: Wet swamps and meadows in the steppe vegetation and montane zones; rare in C and SE BC; circumpolar, E to NF and S to NC, TN, KS, MT, ID and WA; Europe, W Asia.

***Dryopteris expansa* (K.B. Presl) Fraser-Jenkins & Jermy** (*D. assimilis* S. Walker, *D. spinulosa* [Sw.] Watt ssp. *assimilis* [Walker] Schidlay, *D. austriaca* auct. non [Jacq.] Woynar, *D. dilatata* auct. non Hoffm.)
Spiny or spreading wood fern
Habitat/Range: Mesic to wet forests, forest margins and scree slopes from the lowland and steppe vegetation to subalpine zones; common in BC; circumpolar, N to AK, YT and NT, E to NF and S to MI, MN, WY, CO, ID and CA; Eurasia.

***Dryopteris filix-mas* (L.) Schott**
Male fern
Habitat/Range: Mesic to moist alluvial forests, on scree and in rocky crevices from the lowland to subalpine zones; frequent in coastal BC except rare on Vancouver Island, infrequent in SC BC; almost cosmopolitan, but widely disjunct, E to NS and S to VT, MI, SD, TX, NM and CA; Eurasia, S America, S Asia, S Africa.

***Dryopteris fragrans* (L.) Schott**
Fragrant wood fern
Habitat/Range: Dry rocks and scree from the lowland to subalpine zone; infrequent in N BC; circumpolar, N to AK, E to NF and S to ME, MI, WI and MN; N Asia, N Scandinavia.

***Dryopteris marginalis* (L.) A. Gray**
Marginal wood fern
Habitat/Range: Moist woods in montane zone; rare in SW BC (Meager Creek Hot Springs); disjunct from E North America, E from WI, ON, NB to NS, S to GA, AR and OK.

GYMNOCARPIUM

1. Rachis with glands, especially conspicuous at the base of the pinnae; lower leaf blade surfaces glandular ..... *G. jessoense*
1. Rachis glabrous; upper and lower leaf blade surfaces glabrous.
   2. Lamina most commonly bipinnate ..... *G. dryopteris*
   2. Lamina most commonly tripinnate ..... *G. disjunctum*

***Gymnocarpium disjunctum* (Rupr.) Ching** (*G. dryopteris* ssp. *disjunctum* [Rupr.] Sarvela, *Dryopteris disjuncta* [Rupr.] Morton)
Western oak fern
Habitat/Range: Moist forests in the lowland and montane zones; frequent throughout coastal and SC BC; amphiberingian, N to AK, E to AB and S to WY, MT, OR, and WA; Kamchatka, Sakhalin.

***Gymnocarpium dryopteris* (L.) Newman** (*Phegopteris dryopteris* [L.] Fée, *Thelypteris dryopteris* [L.] Slosson)
Oak fern
Habitat/Range: Wet rocky forests, bog margins and rocky ledges in the montane and subalpine zones; common throughout S BC, less frequent northward; circumpolar, N to AK, YT and NT, E to NF and S to PA and MI; Eurasia.

***Gymnocarpium jessoense* (Koidz.) Koidz. ssp. *parvulum* Sarvela** (*G. continentale* [V. Petrov] Pojark., *G. robertianum* auct. non [Hoffm.] Newm.)
Nahanni oak fern
Habitat/Range: Moist, cool, shale talus slopes in the montane and subalpine zones; rare in NE BC; amphiberingian, N to AK, YT, and NT, E to ON and S to WI and MN; Asia.
Notes: A hybrid with *G. dryopteris*, *G.* x *intermedium* Sarvela has not been reported from BC, but can be expected in NE BC.

MATTEUCCIA

Matteuccia struthiopteris **(L.) Tod.**

Ostrich fern

Habitat/Range: Moist to wet sandy to silty gravel banks of rivers and streams and alluvial forests in the lowland and montane zones; infrequent (but locally abundant) throughout BC, absent on the Queen Charlotte Islands and Vancouver Island; circumpolar, N to AK, YT and NT, E to NF and S to MD, VA, OH, IL, MI and SD; Eurasia.

POLYSTICHUM[30]

1. Fronds pinnate, the pinnae not deeply cleft again, with only shallow teeth along the margin.
   2. Lowest pinnae triangular or subtriangular to broadly trowel-shaped, symmetrical; all pinnae spreading-spinulose; stipe length less than one tenth of the frond; spores spiny ..... *P. lonchitis*
   2. Lowest pinnae ovate to lanceolate-falcate, asymetrical; pinnae incurved-spinulose; stipe length more than one-tenth of the frond; spores with folded or bumpy surfaces, without spines.
      3. Pinnae arranged in the plane of the frond, distant; stipe and rachis persistently chaffy with scales more than 1 mm wide; indusia ciliate; pinnae cuneate at the base ..... *P. munitum*
      3. Pinnae folded inwards and oriented about 45° to the plane of the frond, imbricate; stipe and rachis often naked with scales (if present) less than 1 mm wide; indusia entire; pinnae oblique at the base ..... *P. imbricans*
1. Fronds bipinnatifid to bipinnate, the pinnae deeply lobed, incised, or again pinnate.
   4. Pinnae not at all spinulose nor apiculate ..... *P. lemmonii*
   4. Pinnae apiculate to spinulose.
      5. Fronds clearly twice pinnate, the pinnules distinct, sessile or petiolate.
         6. Fronds with vegetative buds on the rachis; indusia entire ..... *P. kwakiutlii*[31]
         6. Fronds without vegetative buds on the rachis; indusia sparsely ciliate on the margins.
            7. Pinnules at the base of the pinnae of unequal length, those pointing up conspicuously larger than those pointing down ..... *P. setigerum*
            7. Pinnules at the base of the pinnae about the same length ..... *P. braunii*
      5. Fronds bipinnatifid, the pinnules adnate to the costa for more than 2 mm, usually with fused bases.
         8. Pinnae lacking filiform scales on either surface.
            9. Pinnae acute at the apex, especially at the base of the blade, armed with coarse (visible without magnification) spreading teeth; stipe shorter than one-fourth of the frond; rare in SW BC ..... *P. kruckebergii*
            9. Pinnae obtuse at apex, especially at the base of the blade, armed with fine, incurved teeth; stipe at least one-fourth of the frond length; rare in SC BC ..... *P. scopulinum*
         8. Pinnae with filiform scales beneath.
            10. Fronds with a vegetative bud on the rachis, usually one third of the way down from the tip.

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[30] Key adapted from Wagner (1979).

[31] See Excluded species.

11. Indusia sparsely ciliate on the margin; infralaminar trichomes with contorted projections ..... *P. andersonii*

11. Indusia entire; infralaminar trichomes simple ..... *P. kwakiutlii*[32]

10. Fronds without a vegetative bud.

12. Pinnae not incised to the costa, the pinnules connate at least one-fourth their length ..... *P. californicum*[33]

12. Pinnae incised to the costa, the pinnules scarcely connate ..... *P. setigerum*

***Polystichum andersonii* Hopkins** (*P. braunii* ssp. *andersonii* [Hopkins] Calder & Taylor)
Anderson's holly fern
Habitat/Range: Mesic to moist coniferous forests, lava flows and rocky scree in the lowland to subalpine zones; frequent in coastal NW BC, infrequent elsewhere; N to AK and S to MT and OR.

***Polystichum braunii* (Spenner) Fée** (*P. braunii* ssp. *purshii* [Fernald] Calder & Taylor)
Braun's holly fern
Habitat/Range: Mesic to wet alluvial forests, coniferous montane forests, scree and lava flows from the lowland to subalpine zones; infrequent in BC; circumpolar, N to AK, disjunct in ON to NS and S to ME, PA, MI, WI and ID; Eurasia.

***Polystichum imbricans* (D.C. Eaton) D.H. Wagner**
Narrow-leaved sword fern
Habitat/Range: Dry rock outcrops, forest margins and open forests in the lowland zone; infrequent in SW BC; S to CA.

***Polystichum kruckebergii* W.H. Wagner**
Kruckeberg's holly fern
Habitat/Range: Dry to mesic ultramafic rock outcrops in the montane and subalpine zones; rare in SW BC, disjunct to NW BC (Cassiar Mountains); S to MT, ID, UT and CA.

***Polystichum lemmonii* Underw.** (*P. mohrioides* [Bory] K.B. Presl var. *lemmonii* [Underw.] Fern.)
Lemmon's holly fern
Habitat/Range: Dry to mesic ultramafic rock outcrops in the montane zone; rare in BC, known only from Okanagan Highland; S to CA.

***Polystichum lonchitis* (L.) Roth**
Mountain or northern holly fern
Habitat/Range: Dry to moist limestone or other basic rocks and rocky scree in the montane to alpine zones; frequent throughout BC; circumpolar, N to AK, E to NS and S to MI, MT, WY, CO, AZ and CA; Eurasia.

***Polystichum munitum* (Kaulf.) K.B. Presl**
Sword fern
Habitat/Range: Moist to mesic forests in the lowland and montane zones; common in SW coastal BC, infrequent in the interior N to 54°N; N to AK and S to MT, ID and CA, disjunct in SD.

***Polystichum scopulinum* (D.C. Eaton) Maxon**
Crag holly fern
Habitat/Range: Dry to mesic shady ultramafic rock outcrops in the montane zone; rare in SC BC, known only from the Tulameen River valley; S to ID, WY, UT, AZ, and CA, disjunct in PQ.

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[32] See Excluded species.

[33] Ibid.

***Polystichum setigerum* (K.B. Presl) K.B. Presl** (*P. braunii* ssp. *alaskense* [Maxon] Calder & Taylor)
Alaska holly fern
Habitat/Range: Moist to mesic shady forests, rock outcrops and lava flows in the lowland and montane zones; rare in coastal NW BC; N to AK.

WOODSIA

1. Stipes not articulate above base, joints absent, fracturing unevenly and leaving persistent stipe bases of uneven length; laminae glandular.
   2. Pinnae and rachis with articulate hairs; glands on pinnae both sessile and multicellular, elongate ..... *W. scopulina*
   2. Pinnae and rachis without articulate hairs; glands on pinnae only sessile ..... *W. oregana*
1. Stipes articulate above the base with slightly thickened, darker joints, fracturing evenly and leaving persistent stipe bases of similar length; laminae mostly eglandular or with only occasional glands.
   3. Rachis and pinnae with very scattered multicellular, white hairs, chaffy scales absent; stipes straw-yellow to yellowish green, dark brown only at the base ..... *W. glabella*
   3. Rachis and lower side of pinnae with scattered brown and whitish hairs and chaffy scales; stipes and rachis reddish brown to dark purple.
      4. Stipes and the lower surfaces of pinnae with numerous reddish brown scales; pinnae of the middle part of the frond 2-2.5 times longer than wide, those at the base with 3-6 deep incisions on each side ..... *W. ilvensis*
      4. Stipes and the lower surfaces of pinnae chaffy with a few, often light scales; pinnae in the middle part of the frond 1-1.5 times as long as wide, those at the base with 1-2 deep incisions on each side ..... *W. alpina*

***Woodsia alpina* (Bolton) S.F. Gray**
Alpine cliff fern, or northern woodsia
Habitat/Range: Moist calcareous rock outcrops in the montane and subalpine zones; rare in N BC; circumpolar, N to AK, YT and NT, E to NF and S to ME, NY, MI and MN; Eurasia.

***Woodsia glabella* R. Br.**
Smooth cliff fern or woodsia
Habitat/Range: Moist rocky crevices in the montane and subalpine zones; rare in E BC; circumpolar, N to AK, YT and NT, E to NF and S to NH, NY, MI and MN; Eurasia.

***Woodsia ilvensis* (L.) R. Br.**
Rusty cliff fern or woodsia
Habitat/Range: Dry rock outcrops and scree slopes in the montane to alpine zones; rare in N and E BC; circumpolar, N to AK, YT and NT, E to NF and S to NC, IL and MN; Eurasia.

***Woodsia oregana* D.C. Eaton**
Western cliff fern, or Oregon woodsia
Habitat/Range: Dry to mesic calcareous rock outcrops and talus slopes in the steppe vegetation and montane zones; infrequent in BC east of Coast-Cascade Mountains, mostly south of 55°N; E to PQ and S to VT, OK, NM, and CA.

***Woodsia scopulina* D.C. Eaton**

Mountain cliff fern, or Rocky Mountain woodsia

Habitat/Range: Dry to mesic rocky crevices and scree slopes in the lowland and steppe vegetation to subalpine zones; frequent in W BC and SC BC, mostly south of 55°N; N to AK and YT, E to PQ and S to SD, WY, CO, NM, AZ and CA, disjunct in VA, TN and AR.

HYMENOPHYLLACEAE

MECODIUM

***Mecodium wrightii* (van den Bosch) Copeland** (*Hymenophyllum wrightii* van den Bosch)

Wright's filmy fern

Habitat/Range: Wet shady rock cliffs, epiphytic on trees in lowland zone; infrequent in coastal BC, sporophytes known from the Queen Charlotte Islands, male gametophytes known on the coast from AK to Long Beach, W Vancouver Island; amphiberingian, N to AK; E Asia.

MARSILEACEAE

MARSILEA

***Marsilea vestita* Hook. & Grev.**

Hairy water-clover

Habitat/Range: Inundated lake margins in the steppe vegetation and montane zones; rare in SC BC; E to SK and S to TN, LA, TX, CA, and MX.

OPHIOGLOSSACEAE[34,35]

1. Veins free; trophophores lobed to pinnate (rarely simple); sporophores branched, with fully exposed sporangia ..... *Botrychium*

1. Veins reticulate; trophophores simple and unlobed; sporophores simple with embedded sporangia ..... *Ophioglossum*

BOTRYCHIUM

1. Trophophore transformed into a second sporophore, so that the leaf has two sporophores but no trophophore ..... *B. paradoxum*

1. Trophophore normally developed without sporangia (or rarely with a few sporangia near the base); sporophore present or absent.

   2. Sporophores commonly absent; trophophores 2-4x pinnate; leaves mostly more than 18 cm tall.

      3. Leaves wintergreen, thick and leathery; sporophores arising at ground level; trophophores stalked with segments ovate, shallowly crenulate or entire ..... *B. multifidum*

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[34] The leaves of this family are unique in having two parts - a sterile photosynthetic blade (trophophore) and spore-bearing appendage (sporophore) that arises from the common stalk.

[35] Editors note: Four species of *Botrychium* (*B. ascendens* W.H. Wagner, *B. hesperium* (Maxon & Clausen) W.H. Wagner & Lellinger, *B. montanum* W.H. Wagner, and *B. pedunculosum* W.H. Wagner) have recently been described by Wagner and Wagner (1981, 1983, 1986). Since these species are known from only a single or a few collections in British Columbia, and since their taxonomic status is still questionable, we prefer to follow more traditional taxonomic treatments.

3. Leaves deciduous, thin and herbaceous; sporophores arising in middle of leaf; trophophores sessile, the segments lanceolate to linear lanceolate, coarsely toothed ..... *B. virginianum*

2. Sporophores always present; trophophores simple (rare) to 1- or occasionally 2-pinnate; leaves mostly less than 18 cm tall.

4. Trophophore attachments strongly variable, those with simple blades usually attached high on the leaf, those with lobed, non-ternate leaves in the middle of the leaf, and those with ternate blades near the base of the leaf ..... *B. simplex*

4. Trophophore attachments relatively uniform, usually attached in the middle to near the top of the leaf.

5. Trophophores ternate, segments linear to narrowly lanceolate ..... *B. lanceolatum*

5. Trophophores not ternate, segments mostly broader.

6. Pinnae or ultimate segments with at least a slight midrib, pinnately constructed.

7. Pinnae mostly at right angles or slightly ascending, imbricate with overlapping margins ... . *B. pinnatum*

7. Pinnae all in one plane, not imbricate, margins distant ..... *B. matricariifolium*

6. Pinnae or ultimate segments lacking midribs, broadly to narrowly flabellate, dichotomously constructed.

8. Lower pinnae broadly flabellate, the anterior and basal margins at an angle of well over 90°; all segments tending to be contiguous or overlapping ..... *B. lunaria*

8. Lower segments narrowly flabellate, the anterior and basal margins at angles of 90° or less; all segments tending to be well separated or remote ..... *B. minganense*

***Botrychium lanceolatum* (Gmel.) Angstr.**

Lance-leaved moonwort

Habitat/Range: Mesic to wet rocky slopes, meadows and woods in the montane to subalpine zones; infrequent throughout BC; circumpolar, N to AK, E to NF and S to VA, WV, OH, MI, WI, NM, UT, AZ and OR; Eurasia.

***Botrychium lunaria* (L.) Sw.**

Common moonwort

Habitat/Range: Mesic to moist woods, meadows and heath from the montane to alpine zones; infrequent throughout BC; circumpolar, N to AK, E to NF and S to ME, VE, NY, MI, MT, CO, AZ and CA; Eurasia, Australia, New Zealand, Patagonia.

***Botrychium matricariifolium* (A. Br. ex Doell) A. Br. ex Koch**

Chamomile moonwort

Habitat/Range: Dry to moist woods, thickets, and meadows in the montane zone; rare in SC BC; circumpolar, E to NF and S to VA and ID; Eurasia.

***Botrychium minganense* Vict.** (*B. lunaria* var. *minganense* [Vict.] Dole, *B. lunaria* ssp. *minganense* [Vict.] Calder & Taylor)

Mingan moonwort

Habitat/Range: Mesic to wet woods and meadows, in the montane to alpine zones; infrequent throughout BC; N to AK, YT and NT, E to NF and S to NY, MI, WI, UT, NE and CA.

***Botrychium multifidum* (Gmel.) Rupr.** (*Sceptridium multifidum* [Gmel.] Tagawa, *B. silaifolium* Presl, *B. occidentale* Underwood, *B. ternatum* [Thunb.] Swartz var. *intermedium* Eaton)

Leathery grape fern

Habitat/Range: Wet meadows, lake margins, peat bogs, river banks and alluvial forests from the lowland to montane zones; frequent in BC north to 55°N; circumpolar, N to AK, E to NF and S to VA, OH, IA, NM, CO, AZ and CA; Eurasia.

***Botrychium paradoxum* W.H. Wagner**

Two-spiked moonwort

Habitat/Range: Mesic to moist subalpine sedge meadows in the subalpine zone; infrequent in SC BC, known only from Juniper Creek (Ashnola River) and Mt. Kobau; E to SK and S to MT and UT.

***Botrychium pinnatum* St. John** (*B. boreale* auct. non [Fries] Milde, *B. boreale* var. *obtusilobum* [Rupr.] Broun)

Northwestern moonwort

Habitat/Range: Mesic to moist streambanks, meadows and heath communities in the montane and subalpine zones; infrequent throughout BC; N to AK, YT and NT, E to MT and S to NV and OR.

***Botrychium simplex* E. Hitchc.**

Least moonwort

Habitat/Range: Vernal pools and ephemeral seepages in the lowland and montane zones; rare in BC (known only from Vancouver Island); circumpolar, disjunct E to ON, PQ and NF and S to NJ, MI, WI, IA, WY, NM, CO, UT, NV and CA; Eurasia.

***Botrychium virginianum* (L.) Sw.** (*Botrypus virginianus* [L.] Michx.)

Rattlesnake fern

Habitat/Range: Wet alluvial forests, swamps and riverbanks, in the lowland, steppe vegetation and montane zones; infrequent throughout BC; circumpolar, N to AK, YT and NT, E to NF and S throughout the USA from FL to CA; Eurasia.

OPHIOGLOSSUM

***Ophioglossum pusillum* Raf.** (*O. vulgatum* auct. non L., *O. vulgatum* L. var. *pseudopodum* [Blake] Farw., *O. alaskanum* Britton)

Northern adder's-tongue

Habitat/Range: Periodically flooded wet meadows and lake margins, in the lowland and montane zones; rare in S BC; N to AK, disjunct E to ON, NB and NS, S to VA, OH, IL, MT and WA.

POLYPODIACEAE

POLYPODIUM

1. Leaves leathery; veins anastomosing; rhizomes white ..... *P. scouleri*
1. Leaves not leathery; veins free; rhizomes green with yellowish or orange tinge.
   2. Leaves with a row of hairs along the rachis and on veins of pinnae on the upper side of the leaves ... . *P. glycyrrhiza*
   2. Leaves with midveins and rachis glabrous or with occasional hairs on the upper side.
      3. Sori without (or with only a few) dark, glandular aborted sporangia (paraphyses) .... *P. hesperium*

3. Sori with numerous dark, glandular aborted sporangia.
    4. Leaves yellow-green, with scattered glandular hairs above; the lower part of the rachis usually with a few dark scales; rare in NE BC ..... *P. virginianum*
    4. Leaves greyish-green, without glandular hairs above; dark scales on the lower part of rachis usually absent; infrequent in coastal SW BC and Fraser River Canyon ..... *P. amorphum*

***Polypodium amorphum* Suksd.** (*P. montense* Lang)
Irregular or Pacific polypody
Habitat/Range: Dry to mesic rocks and rock fissures from the lowland to subalpine zones; infrequent in coastal SW BC and Fraser River Canyon, rare N to 56°N; S to WY, CO, AZ and CA.

***Polypodium glycyrrhiza* D.C. Eaton** (*P. vulgare* L. var. *occidentale* Hook., *P. occidentale* [Hook.] Maxon)
Licorice fern
Habitat/Range: Dry and seasonally wet rocks, trees, and soil humus in the lowland and montane zones; common in coastal BC; N to SE AK and S to CA, disjunct in AZ.
Notes: In the Barkley Sound area this species hybridizes with *P. scouleri*.

***Polypodium hesperium* Maxon** (*P. vulgare* L. var. *columbianum* Gilbert)
Western polypody
Habitat/Range: Dry to mesic rocks from the lowland and steppe vegetation to subalpine zones; infrequent throughout BC north to 56°N; E to W AB and S to SD, NM, AZ and CA.

***Polypodium scouleri* Hook. & Grev.**
Leathery polypody
Habitat/Range: Mesic to moist oceanside rock cliffs and trunks and branches of trees in the salt spray zone in the lowland zone; frequent on the W coast of Vancouver Island, rare northward to the southern tip of Queen Charlotte Islands; S to CA.
Notes: In the Barkley Sound area this species hybridizes with *P. glycyrrhiza*.

***Polypodium virginianum* L.** (*P. sibiricum* Siplivinskij)
Virginia or rock polypody
Habitat/Range: Dry to mesic rocks in the montane zone; rare in NE BC; amphiberigian, N to AK, YT and NT, E to NF and S to GA, AR, SD, MN; E Asia.

THELYPTERIDACEAE

1. Indusia absent; midribs of pinnae grooved above ..... *Phegopteris*
1. Indusia present, kidney-shaped; midribs of pinnae not grooved above ..... *Thelypteris*

PHEGOPTERIS

***Phegopteris connectilis* (Michx.) Watt** (*Thelypteris phegopteris* [L.] Slosson)
Narrow beech or cowboy fern
Habitat/Range: Wet swamps, forests and shaded seepy rock cliffs in the lowland to subalpine zones; infrequent throughout BC; circumpolar, N to AK, YT and NT, E to NF and S to NC, TN, IL, IA, MN and OR; Eurasia.

THELYPTERIS

1. Rhizomes short and stout; stipes with numerous scales along their whole length; rachis with dense rusty brown hairs especially on the upper side; ultimate leaf segments 3-4 mm wide ..... *T. quelpaertensis*

1. Rhizomes elongate and slender; stipes with a few scales at the base; rachis sparsely pubescent with inconspicuous hairs; ultimate leaf segments 1.5-2 mm wide ..... *T. nevadensis*

***Thelypteris quelpaertensis* (Christ) Ching** (*T. limbosperma* auct. non [All.] H.P. Fuchs, *Oreopteris quelpaertensis* [Christ] Holub)
Mountain fern
Habitat/Range: Wet cliffs in the montane and subalpine zones; rare in coastal BC; amphiberingian, N to AK and S to WA; E Asia.

***Thelypteris nevadensis* (D.C. Eaton) Clute**
Nevada marsh fern
Habitat/Range: Gravel bars in the lowland zone (moist in summer, flooded in winter), rare in SW BC, known only from the Sooke River, S to CA.

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APPENDIX

EXCLUDED SPECIES

DICOTYLEDONS

PRIMULACEAE

***Primula veris* L.** This species was reported by Taylor & MacBryde (1977) and Scoggan (1979) but no recent specimens have been seen in the herbaria examined. It is probably a garden escape which does not persist.

RANUNCULACEAE

***Aconitum compactum* (Reichenbach) Gayer.** A garden escape, cited by Brayshaw (1989), which does not persist in our area.

***Anemone deltoidea* Hook.** Collections cited by Macoun (1883-1890) and Raup (1934) have been reidentified (Scoggan 1978).

***Anemone virginiana* L. var. *cylindroidea* Boivin.** Cited by Taylor and MacBryde (1977) but not part of our flora.

***Aquilegia vulgaris* L.** This common garden plant does not persist outside of cultivation in our area.

***Clematis alpina* (L.) P. Mill.** Reported by Boivin (1966-1967) and Taylor and MacBryde (1977), this introduction has been collected only once and is probably not persistent.

***Clematis hirsutissima* Pursh** (*C. douglasii* Hook.). Cited as occurring in our range by Abrams (1944) and Hitchcock *et al.* (1964) but yet to be recorded in BC.

***Coptis occidentalis* (Nutt.) T.& G.** This species, reported by Hitchcock *et al.* (1964) and subsequently treated by Taylor and MacBryde (1977) and Brayshaw (1989), does not reach our range.

***Delphinium nuttallii* A. Gray.** Erroneously reported by Henry (1915) and Abrams (1944).

***Nigella damascena* L.** This ornamental garden plant, cited by Brayshaw (1989), rarely escapes in our area.

***Paeonia brownii* Dougl.** Cited by Macoun (1883-1890) and Henry (1915) but not part of our flora.

***Ranunculus aquatilis* L. var. *aquatilis*.** Although Brayshaw (1989) cites this European taxon as occurring in BC, there is not adequate research justifying such a treatment.

***Ranunculus bulbosus* L.** (*R. tuberosus* Horn.). Cited by Scoggan (1978) and Brayshaw (1989), this species has not been collected since 1890.

***Ranunculus hebecarpus* H.& A.** Reported from ballast at Nanaimo by Macoun (1883-1890) but never recollected.

***Ranunculus micranthus* (A. Gray) Nutt. ex T.& G.** The collections reported by Macoun (1883-1890) are based upon specimens of *R. abortivus* (Scoggan 1978).

ROSACEAE

***Alchemilla xanthochlora* Rothman.** Cited in Taylor (1973), but the specimen, in UBC, upon which this was based was re-identified as *A. subcrenata*.

***Cotoneaster franchetii* Boiss.** Cited in Taylor & MacBryde (1977), but no specimens seen.

***Cotoneaster microphyllus* Wall. ex Lindl.** Cited in Taylor & MacBryde (1977), but no specimens seen.

***Crataegus laevigata* (Poir.) DC.** Cited in Taylor & MacBryde (1977), but specimens are referrable to *C. monogyna*.

***Filipendula rubra* (Hill) B.L. Robins.** Cited in Taylor & MacBryde (1977), but no specimens seen.

***Potentilla arguta* Pursh ssp. *arguta*.** Cited in Taylor and MacBryde (1977), but no specimens seen.

***Potentilla multifida* L.** Cited in Taylor (1973) and Taylor & MacBryde (1977), but no specimens seen.

***Rosa woodsii* Lindl. ssp. *woodsii*.** Cited in Taylor and MacBryde (1977), this prairie subspecies is not known from BC.

***Rubus bifrons* Vest ex Trautv.** Cited in Taylor and MacBryde (1977), but no specimens seen. The record is likely based on misidentifications of *Rubus allegheniensis*.

***Sanguisorba annua* (Nutt. ex Hook.) T.& G.** A specimen cited from BC in Boivin (1966) is *S. occidentalis* according to Scoggan (1978).

RUBIACEAE

***Asperula arvensis* L.** Cited by Taylor and MacBryde (1977) from an old collection at Essondale. This species is not established in BC.

***Galium palustre* L.** Reported for BC by Taylor and MacBryde (1977), but no material seen.

SALICACEAE

***Populus alba* L.** Cultivated in British Columbia but not naturalized.

***Populus nigra* L. var. *italica* DuRoi.** Cultivated in British Columbia but not naturalized.

***Salix cordata* Muhl. non Michx.** This name, a synonym of the eastern American *S. eriocephala* Michx., was used by Henry (1915). He was probably referring to *S. prolixa*.

***Salix fluviatilis* Nutt.** This species, reported by Henry (1915), is unconfirmed for BC. Its taxonomic status is also uncertain.

***Salix lasiolepis* Benth.** Reported for Hazelton by Cronquist (1964) and repeated by Taylor and MacBryde (1977). No specimens from BC have been located.

SANTALACEAE

***Comandra umbellata* (L.) Nutt. var. *umbellata*.** This more eastern variant was cited by Hitchcock *et al.* (1964) from BC but most authors treat our northern material as var. *pallida*.

SAXIFRAGACEAE

***Chrysosplenium glechomaefolium* Nutt. ex T.& G.** This species of the US west coast, first reported by Henry (1915) and taken up by Hitchcock *et al.* (1961) and Taylor and MacBryde (1977), does not occur in BC.

***Saxifraga aizoon* Jacq.** Cited by Scoggan (1978) but no BC material available.

***Saxifraga davurica* Willd. ssp. *grandipetala* (Engl. & Irmsch.) Hult.** Mapped by Hultén (1968) for BC but not documented.

***Saxifraga foliolosa* R. Br. in Parry.** Reported by Taylor and MacBryde (1977) but no material seen.

***Saxifraga radiata* Small.** This species, reported by Taylor and MacBryde (1977), is not part of our flora.

***Saxifraga rhomboidea* Greene.** Cited for BC by Hitchcock *et al.* (1961) and Scoggan (1978) but not occurring in our range.

SCROPHULARIACEAE

***Antirrhinum majus* L.** Cited by Taylor and MacBryde (1977), this garden escape is not established in our region.

***Besseya rubra* (Dougl. ex Hook.) Rydb.** The report of this species from SE BC (Henry 1915) was probably based upon *B. wyomingensis*.

***Castilleja flava* S. Wats.** Cited by Scoggan (1979) but no good BC material seen of this US species.

***Digitalis ambigua* Murr.** (*D. grandiflora* P. Mill.). This garden escape, reported for BC by Scoggan (1979) is not established in our area. It is known from a single 1954 collection at Aldergrove.

***Digitalis lanata* Ehrh.** Scoggan (1979) cited a single 1954 collection from Sooke. This garden escape does not persist in our region.

***Euphrasia mollis* (Ledeb.) Wettst.** The report of this species in N BC (Rydberg 1922) has not been substantiated.

***Kickxia spuria* (L.) Dumort.** Cited by Eastham (1947) and Scoggan (1979) but known from only a single collection at Duncan.

***Limosella subulata* Ives.** Reports of this species in Taylor (1974) and Taylor and MacBryde (1977), are based on misidentifications of *L. aquatica* (Straley *et al.* 1985).

***Linaria macroccana* Hook. f.** Cited by Taylor and MacBryde (1977) but no BC material seen.

***Linaria pinifolia* (Poir.) Thell.** (*L. reticulata* [Sm.] Desf.). The only report of this species from BC (Groh and Frankton 1949) is now over 40 years old and no recent material is available.

***Lindernia dubia* (L.) Pennell.** Reported for BC by Scoggan (1979) but no substantiating material available.

***Mimulus suksdorfii* A. Gray.** This species of the W US, reported for BC by Rydberg (1922), does not extend into our region.

***Misopates orontium* (L.) Raf.** (*Antirrhinum orontium* L.). Cited by Taylor and MacBryde (1977) but no material seen.

***Orthocarpus erianthus* Benth.** This introduction, collected by J. Macoun in 1908 at Victoria (Scoggan 1979), has never been recollected.

***Orthocarpus purpureus* Benth.** Cited by Eastham (1947) from the Victoria area but neither this collection nor any other seen.

***Penstemon attenuatus* Dougl. ex Lindl.** Cited in Taylor (1974) and Taylor & MacBryde (1977), but probably based on misidentifications of *P. albertinus*.

***Penstemon deustus* Dougl. ex Lindl.** Cited in Henry (1915), but no specimens known.

***Penstemon montanus* Greene.** Cited in Straley *et al.* (1985), but probably based on misidentifications of *P. ellipticus*.

***Penstemon triphyllus* Dougl. ex Lindl.** Cited in Rydberg (1922), but no specimens known.

***Penstemon venustus* Dougl. ex Lindl.** Cited in Macoun (1884), but this was based on *P. lyallii*.

***Veronica agrestis* L.** Cited in Henry (1915), but no recent records known.

SIMAROUBACEAE

***Ailanthus altissima* (P. Mill.) Swingle.** This horticultural species, cited by Taylor and MacBryde (1977), does not persist in our region.

SOLANACEAE

***Lycopersicon esculentum* P. Mill.** Cited in Taylor & MacBryde (1977) and Scoggan (1979) and although found in garbage dumps and waste places, not truly established.

***Nicandra physalodes* (L.) J. Gaertn.** Cited in Taylor & MacBryde (1977), based on a single plant (specimen in V) from a garden dump and not known to have become established or to have been found elsewhere.

***Nicotiana attenuata* Torr. ex S. Wats.** Cited in Taylor & MacBryde (1977) and Scoggan (1979), based on old records from Spences Bridge, but no collections known since 1923.

***Physalis pubescens* L.** Cited in Scoggan (1979), based on an 1884 record from Cache Creek, but there are no recent records known.

***Salpichroa rhomboidea* (Gillis & Hook.) Miers.** Ceska (1986) cited this species from a 1916 Victoria collection but no recent material known.

***Solanum tuberosum* L.** Cited in Scoggan (1979), based on a record in CAN from Liard Hot Springs, but not thought to ever become established.

TAMARICACEAE

***Tamarix parviflora* DC.** Reported by Taylor and MacBryde (1977) but not persisting in our region.

VIOLACEAE

***Viola macloskeyi* Lloyd.** This species of OR and CA, cited by many authors (e.g., Hitchcock and Cronquist 1973, Taylor and MacBryde 1977, Scoggan 1978) does not occur in BC.

***Viola nuttallii* Pursh.** This species, reported by Taylor and MacBryde (1977), occurs only east of the continental divide.

***Viola simulata* Baker.** Described by Baker from material collected at Shawnigan Lake (Henry 1915) and placed in synonymy with *V. langsdorfii* by Scoggan (1978). Prior to Baker's description of *V. simulata* the type material had been determined as *V. langsdorfii*. The status of the species remains in doubt.

VITACEAE

***Parthenocissus inserta* (Kern.) Fritsch.** This horticultural species is known from only a single collection at Oliver.

PTERIDOPHYTA

ASPLENIACEAE

***Phyllitis scolopendrium* (L.) Newm.** (*Asplenium scolopendrium* L.). Collected in Port Eliza Inlet, W coast of Vancouver Island by S.O. Charcott in 1980. The cytology of this population indicates that this is an introduction of a European taxon (Cody & Britton 1989).

DRYOPTERIDACEAE

***Polystichum californicum* (D.C. Eaton) Diels.** Collected on Texada Island by W.B. Anderson in 1937. No recent collections.

***Polystichum kwakiutlii* D.H.** Wagner Recently described species based on a specimen collected in Alice Arm by A.D. York in 1935. No recent collections.

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ERRATA - PARTS 1 AND 2

COVERS

ISSN 0834-6452 ... should read ... ISSN 0843-6452

PART 1

Page 36 - line 6 down - *Antennaria parviflora* should read *Antennaria parvifolia*

Page 88 - *Impatiens* key - lead 5 - *I. noli-tangere* and *I. capensis* - reverse these species

Page 98 - line 6 down - F.S. Gray ... should read ... S.F. Gray

Page 136 - header Calprifoliaceae ... should read ... Caprifoliaceae

Page 156 - *Chenopodium* key - 2nd lead 2 - then seeds either ... should read ... then leaves either

Page 173 - last line - Standford ... should read ... Stanford

Page 189 - column 1 - *parviflora* ... should read ... *parvifolia*

PART 2

Page 24 - *Astragalus* key, the 15 leads should read:

15a. Stems erect, 3-9 dm long; pods stipitate, strongly compressed, hairy ..... *A. filipes*

15a. Stems prostrate to erect, 0.5-5 dm long; pods stipitate or sessile, not strongly compressed, glabrous or hairy.

15b. Pods stipitate; wings deeply bidentate at apex ..... *A. aboriginum*

15b. Pods sessile; wings entire at apex ..... *A. miser*

Page 33 - *Lupinus* key

- last lead 18 - omit *L. polyphyllus*
- add lead 19 as follows:

19. Stems strongly fistulose, usually over 6 dm tall ..... *L. polyphyllus*

19. Stems usually only slightly fistulose, usually less than 6 dm tall ..... *L. burkei*

Page 47 - line 21 and 25 down - fumatory ... should read ... fumitory

Page 59 - line 16 up - bullhead ... should read ... ballhead

Page 61 - add:

Phacelia ramosissima Dougl. ex Lehm.
Branched phacelia
Habitat/Range: Dry, rocky soil below limestone cliffs in the steppe vegetation zone; rare in SC BC, known only from Osoyoos; S to SE ID, AZ, NV and CA.
This species will key out to *P. franklinii* from which it differs by being perennial, having prostrate or weakly ascending stems, conspicuously exerted filaments and a more southern range.

Page 62 - line 9 - *Hypericum formosum* H.B.K. ... should read ... *Hypericum scouleri* Hook. (*H. formosum* auct. non H.B.K.)

Page 64 - 2nd to last line - Tulammeen ... should read ... Tulameen

Page 66 - *Lycopus* key - 1st lead - *L. aspera* ... should read ... *L. asper*

Page 73 - line 2 - add:

1. Perianths 4-5 (6) -merous; petals (3) 4-12 mm long; plants of SW BC ..... *Limnanthes*
1. Perianths usually 3-merous; petals 2 mm long, or less; plants of SC BC ..... *Floerkea*

Floerka proserpinacoides Willd. (*F. occidentalis* Rydb.)
False-mermaid
Habitat/Range: Seepage sites in the montane zone; rare in SC BC, known only from Christina Lake and Salmo; E to NS and S to GA, VA, TN, ND, CO and CA.

Page 77 - line 14 up - var. *oregana* ... should read ... var. *procera* C.L. Hitchc.

Page 104 - line 13 - add after *Eriogonum strictum* Benth ... spp. *proliferum* (T. & G.) Stokes

Page 125 - line 1 - Nichols ... should read ... Nicholls